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A COHORT ANALYSIS OF CAREER PROGRESSION  
FOR ETHNIC AND FEMALE OFFICERS  
IN THE U.S. NAVY

by

Lisa R. Werkhaven

March, 1993

Thesis Advisor:

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A Cohort Analysis of Career Progression for  
Ethnic and Female Officers in the U.S. Navy

by

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Submitted in partial fulfillment  
of the requirements for the degree of

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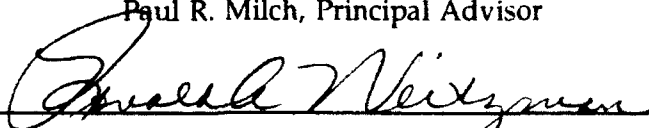


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## ABSTRACT

The goal of this thesis was to conduct a cohort analysis to compare the career opportunities, in terms of loss and promotion rates, of Black, Hispanic and female naval officers with those of white ethnic and male officers, respectively. Inventory and promotion data was compiled from the Officer Personnel Information System data file to compute ethnic/gender loss and promotion rates for year groups 1960-1991 in the Surface, General Unrestricted Line, Aviation and Submarine communities. Computation of loss and promotion rates was conducted in three stages. The first stage computed rates for each year group by year of service (YOS). The second stage computed rates averaged across year groups for each YOS. The third stage computed rates within milestone periods which grouped YOSs into six or seven significant periods in each community's career path. Rates were averaged for each milestone period across several year groups and all YOS's within that period. This study found differences in loss and promotion rates specific to each community and ethnic/gender group. In many cases, higher loss rates were accompanied by lower promotion rates for the ethnic and gender groups studied, with notable exceptions. Further research is recommended to determine reasons for differences in loss and promotion rates as well as to conduct a similar study in five to ten years, in which time more data would become available.

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## **I. INTRODUCTION**

The Navy of today is committed to achieving an officer and enlisted force fully representative of American society's varied ethnic composition and providing for equal career progression opportunities. In addition to recruitment, retention and promotion of quality personnel are key elements in defining these opportunities and are crucial to building and maintaining a professional force utilizing all available personnel resources.

### **A. BACKGROUND**

On July 26, 1948, President Harry S. Truman issued Executive Order 9981, which called for "equality of treatment and opportunity for all persons in the armed services without regard to race, color, religion or national origin." (Northrup, 1979) About 30 years later, the percentage of minority officers participating in the Navy officer corps, particularly

Blacks and Hispanics<sup>1</sup>, has finally begun to increase slowly as shown in Table I.

**Table I.** MINORITY GROWTH IN THE NAVY'S OFFICER CORPS AS A PERCENTAGE OF TOTAL OFFICER FORCE

---

	1976 <sup>1</sup>	1982 <sup>1</sup>	1987 <sup>1</sup>	1991 <sup>2</sup>
<b>Blacks</b>	1.6	2.9	3.4	4.3
<b>Hispanics</b>	1.0	0.9	1.8	2.5

---

1. Data from the Department of Defense, Office of Military Personnel Management, "Navy Officer Corps," 1987, pp. 1-10.  
2. Data from the Department of Defense, Office of Military Personnel Management, "Navy Officer Corps," 1991, pp. 1-10.

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Although career opportunities have expanded for minority officers in the last 40 years, a 1987 Navy assessment of Equal Opportunity Programs indicated little progress in recruiting and retaining Black and Hispanic officers; wide disparities between Black and White officers in promotion rates to

---

<sup>1</sup> Ethnic terminology used in this thesis is based on Department of Defense Military Equal Opportunity Program Directive 1350.2, December 23, 1988 which uses the following definitions:

- 1 Black (Not of Hispanic Origin). A person having origins in any of the original peoples of Africa.
- 2 Hispanic. A person having origins in any of the indigenous peoples of Mexico, Puerto Rico, Cuba, or Central or South America, or of other Spanish cultures, regardless of race.
- 3 White (Not of Hispanic Origin). A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.



lieutenant commander, commander and captain; and failure of minority officers (and enlisted personnel) to enter technical career paths in representative numbers (Longo, 26 December 1988). These disparities led to formation of an Equal Opportunity Study Group in 1988 which resulted in the installation of new training programs and the revitalization of the Navy's affirmative action program.

As of 1991, recruitment, promotion and retention of minority officers have improved significantly. Recruitment goals of 7 percent Black and 4 percent Hispanic, to support achieving a minority officer inventory goal of 6 percent Black by the end of FY-2000 and 3 percent Hispanic by the end of FY-99, were essentially realized with the commissioning of 424 Black officers (6.6 percent of total) and 244 Hispanic officers (3.8 percent of total). Table II shows the progress of recruitment of minority officers from 1975 to 1991. As percentages of their own race/ethnic group, overall Black and Hispanic in-zone promotion rates were comparable to those of White officers on the FY-91 active duty promotion boards. Minority officer retention figures compare favorably with those of White officers. This is important because higher retention rates will increase minority demographic representation throughout the Navy. (1991 MEOA)

**Table II.** PERCENTAGE OF OFFICER ACCESSIONS WHO ARE BLACK AND HISPANIC, SELECTED YEARS, 1975-1991

	1975 <sup>1</sup>	1978 <sup>1</sup>	1981 <sup>1</sup>	1984 <sup>1</sup>	1987 <sup>1</sup>	1991 <sup>2</sup>
<b>Black</b>	2.5	4.5	3.4	4.6	4.2	6.6
<b>Hispanic</b>	1.1	1.0	1.3	3.1	2.9	3.8

While the Navy has made progress towards attaining a more demographically balanced force, some concerns still remain regarding minority opportunities. Minorities continue to be underrepresented in the officer corps, especially in the senior ranks. Blacks now comprise 4.3 percent of the total officer force and Hispanics are 2.5 percent of the force. The minority officer inventory goal reflects the percentage of minorities with college degrees in the general population. Interim inventory goals of 4.1 percent Black and 2.2 percent were met in FY1991.

However, as Table III shows, there are much lower percentages of minorities in most of the higher officer paygrades (such as O-6 through O-8). Also, minorities are underrepresented in the technical fields, such as the submarine and aviation communities as shown in Table IV.

**Table III.** PERCENTAGE DISTRIBUTION OF MINORITY OFFICERS BY PAYGRADE FOR FY1991

Paygrade	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9
Black	6.3	5.0	4.3	3.3	2.3	1.2	1.6	0.0	4.3
Hispanic	3.8	3.6	2.8	1.5	1.2	0.6	2.3	1.1	0.0

SOURCE: 1991 MEOA

**Table IV.** PERCENTAGE OF MINORITY OFFICERS IN AVIATION, SUBMARINE, SURFACE, AND GENERAL UNRESTRICTED LINE COMMUNITIES FOR THIRD QTR FY1992

Community	Aviation	Submarine	Surface	GenURL
Black	2.16	1.07	5.46	10.19
Hispanic	2.57	1.25	3.06	2.62

SOURCE: NAVY-WIDE DEMOGRAPHIC DATA FOR THIRD QTR FY1992

Notes: Reflects O-1 to O-10 paygrades

On a somewhat parallel course with minorities are female officers in the Navy. Although women (nurses) have been accorded formal Navy status since 1908, it has only been since the inception of the all-volunteer military in 1972 that women have become a significant and integral part of the Navy. Women comprised 11.3 percent of the total officer force (W-1 to O-10) in 1991 (1991 MEOA) compared to 2.3 percent in 1973 (GAO/NSIAD-89-210BR), and the types of jobs held by women have continued to expand.

However, concerns continue to arise regarding the full integration of women into the military and in particular the officer corps. Like minority officers, women are underrepresented in the senior ranks. Table V shows the percentage distribution of officers by gender in paygrades O-1

through O-9. Women continue to have small representation within the surface and aviation warfare communities (see Table V.2) and remain excluded from certain warfare disciplines, most notably the submarine and special warfare communities.

**Table V.1. PERCENTAGE DISTRIBUTION OF OFFICERS BY GENDER AND PAYGRADE FOR FY1991**

Gender	O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-8	O-9
Female	13.8	11.5	12.6	12.9	7.9	3.6	1.6	1.1	0.0
Male	86.2	88.5	87.4	87.1	92.1	96.4	98.4	98.9	100

SOURCE: 1991 NEDA

**Table V.2. PERCENTAGE DISTRIBUTION OF FEMALE OFFICERS IN THE AVIATION, SURFACE AND GENERAL UNRESTRICTED LINE COMMUNITIES FOR FY1991**

Community	Aviation	Surface	GenURL
Female	2.0	1.7	86.4
Male	98.0	98.3	13.6

Source: Navy-Wide Demographic Data for Third LTR FY-91

Note: Reflects O-1 to O-10 pay grades

Promotion and retention of quality officers are key elements in maintaining a professional career force and ensuring maximum utilization of minorities and women in the Navy. Promotion rates are a predominant criterion in maintaining retention eligibility and defining successful career progression. The degree to which minorities and women

are retained has an important impact on their representation in the military. Additionally, retention of minorities and women is a factor in determining the number of minorities and women available and eligible for promotion to the higher pay grades and ranks within the career force. (Northrup, 1979) Underrepresentation of minorities and women in the upper ranks is mostly due to the fact that promotion is dependent on tenure (Eitelberg et al., 1989). An officer has to have a minimum amount of time in grade to be eligible for advancement to the next higher paygrade. For example, to be eligible for promotion to O-6, an officer must exhibit successful career progression through promotion and retention to achieve eligibility criteria of minimum time in grade. Currently, it takes about 22 years for an officer to make O-6. Accordingly, the earliest the Navy will be able to achieve 6 percent Black representation at the O-6 level is when year group 92 is promoted to Captain. This is also dependent on Black promotion and retention rates being comparable to those of other ethnic groups in that year group.

As required by Department of Defense policy, the Navy monitors the career progression of minority and women officers and submits a report, the Military Equal Opportunity Assessment (MEOA), for the fiscal year. The MEOA provides a statistical analysis on ten selected categories of fair treatment, e.g., promotion, force composition, retention,

recruiting, for all service members through affirmative actions and other initiatives.

The MEOA collects promotion and retention statistics by fiscal year. Another method to monitor career progression would be to track officers within their respective commissioning year groups and determine their representation, promotion and loss rates as they mature in the system. These data could then be analyzed to compare rates within, as well as between, communities to determine if differences exist.

#### **B. OBJECTIVE AND SCOPE**

This thesis will examine the composition of selected Unrestricted Line communities of minority and women officers by year group and compute loss and promotion statistics for these cohorts. The study parallels the Navy's MEOA analysis but with one important distinction. Whereas the MEOA looks at statistics by fiscal year, this thesis will address statistical rates by individual commissioning year groups. Fiscal year studies of paygrades are based on data that are aggregates of several year groups. For instance, within the O-3 paygrade in any fiscal year there could possibly exist up to 6 year groups. Retention rates may differ among these various year groups but are not individually observed because in a fiscal year analysis they are combined to report one rate for the entire O-3 paygrade. By tracking the year groups as they mature through their "career" for 30 years, retention and

promotion rates can be observed for each year group by years of service.

The analysis of data will be limited to reporting statistical trends and differences among the minority and women cohorts as compared to those of ethnic White and male officers, respectively. Only Black and Hispanic ethnic groups will be studied because they represent the largest minority ethnic groups in the United States as well as in the Navy. An analysis of gender representation is included in the study because of the increased emphasis on women brought on by their growing numbers and expanding assignment opportunities. Although a background discussion of minority and female participation in the Navy is included in Chapter II, a detailed historical account and analysis of statistical trends in terms of political, military, and social policies is beyond the scope of this thesis.

The study will focus on the Aviation Warfare, Submarine Warfare, Surface Warfare, and General Unrestricted Line (GenURL) communities. Since women are prohibited from permanent assignment aboard submarines, an analysis of gender representation in the Submarine community will not be conducted. Training and Administration of Reserve (TAR) Officers will not be included in the study since these officers have distinctly different career paths from their active-duty counterparts, as well as separate promotion

boards. The Unrestricted Line (URL) officer designators used in the study will include the following:

General Unrestricted Line (GenURL) Community  
110X URL officer

Surface Warfare Officer (SWO) Community  
111X URL officer qualified in Surface Warfare  
(includes nuclear trained SWOs)

116X URL officer in training for Surface  
Warfare Qualification

Submarine Warfare Officer Community  
112X URL officer qualified in submarine Warfare  
(includes Nuclear and General Submarine  
Officer)  
117X URL officer in training for Submarine  
Warfare Qualification

Aviation Warfare Officer Community  
130X URL officer in the aviation community  
whose rating as pilot or Naval Flight  
Officer (NFO) has been terminated  
131X URL officer qualified for duty involving  
flying as pilot  
132X URL officer qualified for duty involving  
flying as NFO  
137X URL officer in training for duty involving  
flying as pilot  
139X URL officer in training for duty involving  
flying as NFO

The study will be limited to the amount and type of data available in the Officer Personnel Information System (OPIS) file maintained by the Navy Personnel Research and Development Center (NPRDC), San Diego, CA. Inventory and promotion data will be used to compute loss and promotion rates for year groups 1960 through 1991. Because some data are not available prior to 1975, year groups 1960 to 1974 will be incomplete. For instance, for year group 1960, rates for the first 14 YOS are missing due to the first availability of data in 1975.



### **C. OVERVIEW**

Chapters II and III create a perspective for the study by presenting a brief history of the minority and female experience in the Navy officer corps and the Navy's promotion practices. Chapter IV identifies the source of data and outlines the methods and statistical procedures used in the study. Chapter V presents the research findings. Chapter VI contains conclusions drawn from the study.

## **II. MINORITIES AND WOMEN IN THE NAVY**

This overview of the experience of minorities and women, particularly officers, in the U.S. Navy is presented to establish a context for this study. It is important to understand the pace and timeframe of the advances gained by these groups, in terms of social acceptance, cultural differences and access to job opportunities. Evidence of these advances would not show up in the senior ranks for about 15 to 20 years after their initial acceptance.

### **A. BLACKS IN THE NAVY**

Blacks have fought in every major American conflict since colonial days. During the Revolutionary War, 1500 Black Americans served their country "manning boats, working sails, loading guns and piloting coastal vessels." (Baldwin, 1983) Following the Revolution, Blacks were prohibited from serving in the armed forces. However this did not stop Blacks from serving in the 1798-1800 naval war with France and in the War of 1812, presumably because of military manpower needs. (Northrup, 1979) A pattern developed wherein Blacks would be recruited to serve in a conflict only when there existed manpower shortages. They would be retained during the conflict but dismissed following the conclusion of the

conflict. This pattern became known as recruit-retain-and-reject and would last until the Korean War. (Butler, 1992)

Black sailors continued to serve on an integrated basis during the Spanish-American War. Policy during this timeframe decreed that Blacks would be limited to serving in the lower ranks. By the time of World War I informal Navy practices began to align themselves with the segregationist influences of the society at large. And, in fact, the Navy instituted a segregationist policy that restricted Blacks to serve in the messmen or steward branch. Ten thousand Black recruits served in World War I in this capacity. In the wake of post World War I reductions, enlistment of Black sailors was almost completely discontinued. (Northrup, 1979) In 1932, the Navy began recruiting Blacks again for messmen duties only.

Because of World War II and its need for manpower, the Selective Service Law of 1940 called citizens to service without regard to race, color or creed. The War Department decreed that Black accessions would be increased in numbers that reflect the proportion of Blacks in the general population. In April 1942, Blacks were accepted into all general service ratings but they were still trained in segregated units. In February 1946, the Navy lifted all service restrictions on Blacks. The Navy was also the first service to institute desegregation policies.

With the onset of the Korean War, demand for military manpower again increased. The need for manpower on the front

line forced the services to integrate combat units with Blacks from the rear supply units. Enlistment of Blacks grew to 4.3 percent of total enlistments for the Navy by the end of the War. (Northrup, 1979)

During the Vietnam Era, the racial turmoil seen in the civilian society spilled over into the military. Perceived injustices directed against Blacks on several naval vessels in 1972 led to racial tension and even violence. The Department of Defense and the Navy responded by establishing race relations and affirmative action programs. The Navy continues to make progress in the areas of equal opportunity and race relations as evidenced by the increasing numbers of minorities in the service and in the senior ranks.

Black men were serving in the Navy 169 years before the first Black officer was commissioned in 1944. (Baldwin, 1983) On March 17, 1944, 13 Black officers, known as the "Golden 13", were commissioned as line officers in the Naval Reserve. That same year saw the commissioning of 10 Black female officers into the Women's Auxiliary Volunteer Emergency Service (WAVES). (Longo, 1988) Towards the end of World War II there were 60 Black officers on active duty, but by the end of the war there were only four still on active duty. (Baldwin, 1983)

The first Black graduated from the Naval Academy in 1949 even though Blacks had enrolled as early as 1872. (Longo, 1988). On January 31, 1962, Samuel Gravely became the first

Black officer to assume command of a ship, the USS FLAGOUT. He went on to become the first Black officer to attain the rank of Captain and then Admiral. (Baldwin, 1983)

#### **B. HISPANICS IN THE NAVY**

Hispanics have participated in conflicts since the beginning of the European presence in the Americas. Unfortunately their military history has not been well documented. In addition, Hispanics have only been identified as an ethnic group by the Navy since 1977 (Zucca, 1984). Another problem in chronicling the Hispanic experience in the military is that racial/ethnic identification of military personnel is based on self-selection on the part of the individual. Various studies have found that many individuals with Spanish surnames do not identify themselves as Hispanics--which suggests that this method of self-selection results in an undercounting of persons who may be of Hispanic origin (Eitelberg et al., 1989).

During the Civil War, Hispanics fought for both the Union and the Confederacy. Most Mexican-Americans served in regular army or volunteer units on an integrated basis, although some served in predominantly Mexican units with their own officers. The most famous Hispanic participant in the Union forces was Admiral David G. Farragut, who distinguished himself in the battles for New Orleans and Mobile and is best known for saying, "Damn the torpedoes. Full speed ahead." Hispanics

were also among those who served in the Rough Riders during the Spanish-American War.

Although historical records are incomplete, Hispanic Americans did participate in World War I. During this period, about one-third of the U.S. population were recent immigrants; and the likelihood was that many had little or no skill in English. Because of this, thousands of the estimated 3.8 million men who were drafted were found to have insufficient skill in English to complete military training. Inductees with limited or no ability in English were relegated to development battalions and assigned to menial jobs. Eventually, the language problem was identified as a barrier to training and the men were separated into language groups. Training then progressed in the native tongue of the draftees. This type of training became known as the "Camp Gordon Plan." By the time it took to identify and remedy the problem and to train the non-English speaking soldiers, the war was nearing an end and only a few saw combat.

During World War II an estimated 250,000 to 500,000 Hispanics served in the armed forces, which is approximately 2.5 to 5 percent of all persons who served during the war. With the exception of the 65th Infantry regiment from Puerto Rico, Hispanics were not in segregated units. Hispanic-Americans continue to serve their country with distinction in all the services up to the present. (Hispanics in America's Defense, 1983)

Since the Vietnam War, Hispanic participation in the active forces has remained somewhat static, showing a slight increase in the last decade only. This is in stark contrast to their rapid increase in the general population which has been five times as fast as the rest of the population since 1980. Their number has grown 53 percent and is now 22.4 million, or about 9 percent of the U.S. total population.<sup>2</sup> At this rate, Hispanics could overtake Blacks (30 million, or about 12 percent of the U.S. population) as the largest U.S. minority by year 2015 (Barringer, 1991).

In 1984, a workshop was sponsored by the Manpower R&D Program of the Office of Naval Research to discuss various subjects on Hispanic subpopulations and the naval service. The workshop stressed that "Hispanic Americans are not a monolithic group but, rather, a set of four or five subpopulations distinguished by degree of acculturation to the mainstream society, command of English, and beliefs and attitudes." (Sinaiko, et al., 1985) Since the growing Hispanic population is an important manpower resource for the military, a better understanding of their specific cultural attributes is a precursor to increasingly effective recruiting and retaining of Hispanic Americans in the Navy.

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<sup>2</sup>These figures do not distinguish between legal and illegal residents.

### C. WOMEN IN THE NAVY<sup>3</sup>

Women have served for and with the American Navy during the Revolutionary War, War of 1812 and Civil War. But it was not until 1908 that women were able to serve in the Navy with the establishment of the Navy Nurse Corps. During World War I the Navy authorized the enlistment of women as yeomans. By the end of the war, 11,275 "yeomanettes" had served and all were separated within a few months of the war's end.

In 1942, the WAVES (Women Accepted for Volunteer Emergency Service) was formed to relieve men from support functions ashore so they could fight the war at sea. Approximately 86,000 female enlisted and officer personnel joined the war effort and performed in both traditional (administration, intelligence expert, communicator, etc.) and non-traditional (pilot, aviation mechanic, welder, etc.) jobs. The majority of women, like their male counterparts, were mustered out of the service in 1946.

1948 saw the passage of the Women's Armed Service Integration Act which incorporated women into the Active and Reserve forces. The law limited participation of women in several respects:

- Enlisted women's strength could not exceed 2 percent of total enlisted strength,

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<sup>3</sup> All of the information for this section was taken from RADM Roberta L. Hazard's keynote address to the Navy Women's National Convention, July 30, 1987, unless otherwise noted.



- Officer numbers could not exceed 10 percent of the female enlisted strength, and
- Women could command only those activities comprised primarily of women.

Institutional progress for women coincided with the turbulent political, military and social changes that occurred in the 1960's and 1970's. In 1967, Department of Defense-sponsored legislation removed the ceiling on women's numbers. Women were allowed to compete for promotion through the grade of Captain and were eligible for appointment to Flag rank.

Following conversion to the all-volunteer force, the Navy opened its doors to more women because of declining numbers of men willing to serve in the post Vietnam era. These increases were accompanied by major changes in personnel policies. These changes included ending the automatic discharge of pregnant women and those with minor dependents and providing equal family entitlements for married men and women soldiers. (Butler, 1992) The policies expanded opportunities for women, as well, allowing for more diversified assignments. Women were allowed to command shore units composed of men and women. Naval aviation was opened to women in 1972, and a pilot program was initiated to study the success of women who were assigned to ship's company on board USS SANCTUARY. Women were admitted into the senior War Colleges and some of the Staff Corps. By 1973, women were no longer managed separately within the enlisted ranks or in the URL and Staff Corps. The title "WAVES" was abolished.

In 1976, the military academies were opened to women, the first URL female Flag officer was selected and the remaining Staff and Restricted Line communities were opened to women. The Combat Exclusion Law (Title 10, Section 6015) was amended allowing women officers access to the surface warfare and special operation communities, albeit in restricted numbers. Also, enlisted women as well as female officers could be assigned to sea duty on board non-combatant auxiliary and support ships as well as Military Sealift Command ships.

In the 1980's the Limited Duty Officer program was opened to enlisted women. The process for selection to Flag rank was changed so that women, like men, are now chosen by the same selection board process.

Opportunities for women in the Navy have significantly improved in the last two decades. The final barrier to full integration, combat exclusion, continues to be debated by the military, Congress and society in general.

### **III. NAVY PROMOTION PROCESS**

#### **A. BACKGROUND**

The military promotion system strives to ensure that adequate numbers of qualified officers in desired paygrades are available to fill vacated positions in the military hierarchy and, as a result, defines to a large extent the force structure. The system also serves as a reward for high-performing officers to ascend to positions of increased authority and responsibility. (Hansell, 1979)

The Navy's officer promotion system has undergone numerous revisions since World War II. The Officer Personnel Act of 1947 laid the foundation for today's officer personnel system and incorporated the up-or-out philosophy into the officer personnel management system. The up-or-out system provides for removal from active service, or, if eligible, retirement of an officer who has been passed over for promotion two or more times, depending on grade and number of years of service. (Hansell, 1979) The purpose of this policy is to encourage upward movement of only the best officers by providing at each rank more qualified officers than there are positions at the next higher rank (Eitelberg et al., 1989).

Various pieces of legislation were enacted following the Officer Personnel Act of 1947, including the Officer Grade

Limitation Act of 1954, which established limitations on the number of both Regular and Reserve officers who may serve on active duty in the grades of O-4 and above, temporary relief legislations in 1966, 1968, 1972, and 1974, and the Defense Officer Personnel Act of 1981 (DOPMA) (Hansell, 1979). Since 1973 the Navy's officer personnel management system has operated concurrently with the implementation of the all-volunteer force.

DOPMA, passed in December 1980 with an effective date of 15 September 1981, significantly revised the laws which govern the management of the entire Department of Defense (DoD) commissioned officer corps. It specifically addressed common provisions for accession, promotion, retention and attrition of DoD officers.

DOPMA provided for a single permanent promotion structure for each of the services. This eliminated the "running mate" system used by the Navy which linked staff officer promotions to lineal numbers in the URL. When the URL running mate was promoted, the staff officer was also promoted.

DOPMA established standardized career lengths of 30 years for captain, 26 years for commander and 20 years for lieutenant commander. The bill provides for selective-continuation procedures to allow officers who have been passed over twice for promotion to remain on active duty, depending on grade and years of service, until the normal retirement point.

DOPMA specified grade ceilings for O-4 (lieutenant commander), O-5 (commander) and O-6 (captain). These three grades are known as "control grades" and the Secretary of Defense prescribes the size of each control grade for each of the services. The Secretary of the Navy then divides these grade authorizations among each of its competitive communities. By imposing limits to the number of lieutenant commanders, commanders, and captains who could be on active duty based on the overall force, DOPMA guidelines create a pyramid force structure. (Doyle, 1989)

#### **B. THE NAVY'S PROMOTION PROCESS**

The structure of the Navy's officer corps resembles a pyramid which rises from a broad base comprised of relatively inexperienced, junior officers to the upper echelon of a few Flag officers and topped by one Chief of Naval Operations. Primarily, accessions, entries into the system, occur at or near the base creating an internal personnel flow ascending to the top of the pyramid. Realistically, all who enter this hierarchy at the bottom cannot reach the top, but each officer has the same opportunity as his/her contemporaries to reach the top grade of his/her category. (Hansell, 1979) Specifically, each rank in the military pyramid supports or "feeds" the one above it, and promotion rates are dependent on attrition rates in the grade above.

DOPMA outlined a set of minimum promotion opportunity, promotion flow points (the number of years of commissioned service at which most officers would be promoted to the next higher grade) and minimum years in grade (YIG) as specified in Table VI.

**Table VI.** DOPMA PROMOTION FLOW POINT, PROMOTION OPPORTUNITY AND MINIMUM YEARS IN GRADE

Grade	Flow Point in YOS	Promotion Opportunity	Minimum YIG
ENS to LTJG	2	All Qualified	18 months
LTJG to LT	4	95%	2 years
LT to LCDR	10 +/- 1	80%	3 years
LCDR to CDR	16 +/- 1	70%	3 years
CDR to CAPT	22 +/- 1	50%	3 years

SOURCE: THE NAVAL OFFICER'S CAREER PLANNING GUIDE, 1990 Edition and (Doyle, 1989).

Promotion opportunities, along with the number of vacancies to be filled in each grade and individual community (competitive category), determine the number of officers eligible, or in-zone, for selection. For example, if there are 140 commander vacancies projected for the next fiscal year and the promotion opportunity is set at 70 percent,  $140/0.7$  or 200 officers in the grade of lieutenant commander would be in the promotion zone.

Annually naval promotion planners start the promotion process by determining the projected need for officers in each grade within each of the competitive categories (i.e., Line,

Staff). Three factors are used in the process: authorized officer strength, promotion flow point and promotion opportunities. These factors are interrelated and a change in one will force a change in at least one of the others. (Doyle, 1989)

#### **IV. DATA AND METHODOLOGY**

##### **A. DATA**

Data from fiscal years 1975 through 1992 were obtained from the Officer Personnel Information System (OPIS) database which is maintained by the Navy Personnel Research and Development Center (NPRDC), San Diego, CA. OPIS is an aggregate data file extracted annually from the Officer Master File and consists of inventories and personnel flows, such as lateral movements, promotions, losses, etc. OPIS is arranged by count or frequency of record per fiscal year. Inventory and promotion data, arranged by community, ethnic group and gender, were extracted for use in computing personnel flows. The OPIS variable codes used in this study are listed in Appendix A.

OPIS is uniquely configured to study personnel data within a system. OPIS groups officers with the same characteristics into aggregate files or bins. However, because of this aggregation, OPIS cannot track an individual officer from bin to bin.

There are two characteristics of OPIS that can affect computed continuation rates. First, OPIS does not count losses and gains that occur in the same year. For example, an individual who enters the system during a particular year and



then leaves during that same year will not be counted as a loss or gain by OPIS. Second, OPIS does not recognize a change in year group caused by early promotion, per se. Rather, OPIS recognizes the early promotee's record by advancing it one year in YOS to match that of the new peer's year group. For instance, if an early promotee's record should have been counted in YOS 16 it will instead be counted in YOS 17 to give credit for one year's seniority which is equivalent to changing year groups. These two idiosyncracies can have an effect on the computation of continuation rates, but the effect is postulated to be negligible.

## **B. WORKING DEFINITIONS**

### **1. Year Group (YG).**

An officer's year group is determined by the fiscal year in which he/she is commissioned.

### **2. Years of Service (YOS).**

Years of service is the number of years of active commission time served to date by an officer and is computed from the active commission base date. YOS in this study will be computed as the current fiscal year (FY) minus the officer's year group (YG).  $YOS = FY - YG$

### **3. YOS/Grade Category**

The YOS/grade category is the cell in a matrix at which point the YOS row and paygrade column intersect.

#### **4. Inventories.**

Inventories are the number of officers on active duty in each YOS/grade category at the beginning of a fiscal year. These beginning inventories, or stocks, are used to compute both promotion and attrition rates.

#### **5. Losses.**

Loss refers to the total loss of individuals from a system for whatever reason. In this study, a loss is defined as any officer leaving the community during a FY from among those who were there at the beginning of the FY. Officers who transfer out of one community but do not leave the Navy will also be counted as losses for purposes of this study. Losses will be computed as the difference between inventories in successive YOS categories of the same YG.

#### **6. Lateral Transfer**

A lateral transfer is a movement of an officer from one community to another, as such it is included in the losses of the originating community. Refer to section E.1.c. of this chapter for a more detailed explanation of the effect of lateral transfers on loss and promotion rates.

### **C. COHORT ANALYSIS**

#### **1. Cohort Analysis**

A cohort is any group of individuals who join an organization (system) at about the same time. Cohort analysis, then, consists of tracking that group as it moves

through the system. In this study, each year group within a community/ethnic or community/gender category is a cohort and they are observed as to their loss and promotion behavior in the system. Typically, over a period of time the number of personnel remaining in the cohort will decrease due to losses. In this system each person may make one of three transitions during a period of one year:

- move to the next YOS but stay in the same grade;
- move to the next YOS and the next higher paygrade;
- move out of the system.

## **2. Loss Rates**

"Of all the flows in a manpower system, [loss] is the most fundamental for manpower planning" (Bartholomew et al., 1991). Loss is partially under the control of management as a result of the up-or-out policy in the Navy, but as a whole it is outside management's control as a result of all the individual decisions to leave. Within the Navy manpower system, the number of jobs is controlled. Therefore opportunities for promotion and recruitment are created by vacancies resulting mainly from losses. Measures of loss, then, can be used as indicators of organizational health. (Bartholomew et al., 1991) Here, they will be used to compare the "health" of various cohorts.

### **3. Promotion Rates**

Opportunities for promotion are created by vacancies resulting from losses. On the other hand, the promotion system in the Navy attempts to ensure that the right number of qualified people are available to fill those vacated positions within the military hierarchy.

The promotion rate, in this study, is computed by dividing the number of officers promoted to the next grade in a YOS/grade category by the beginning inventory in the YOS/grade category. For example, if there are 200 lieutenants in YOS 10 and 160 of them are promoted to lieutenant commander then the promotion rate for the lieutenant grade/YOS 10 category is  $160/200$  or 0.80.

### **D. METHODOLOGY**

The Statistical Analysis System (SAS) program was used to convert OPIS fiscal year records into year group records. Matrix tables by YOS and paygrade were constructed showing inventories and promotion data for each year group by designator and by ethnic group or gender. The inventory data were imported into the spreadsheet software program, Quattro Pro. Promotion and attrition rates were computed using the spreadsheet program. Data inconsistencies, defined as data not consistent with time in grade or time in service requirements, occurred occasionally and were deleted from the inventory tables. For instance, the surface community, white

ethnic inventory table for YG 1987 showed 41 admirals at YOS 3. The 41 admirals were considered to be an anomaly since the minimum time in service requirement was not met for this grade. Therefore they were deleted from the inventory total for YOS 3. Figures 1 and 2 are examples of SAS generated inventory and promotion tables for YG 1983, surface community, white ethnic group. The promotion tables reflect the number of promotions to the paygrade at the top of the column.

YOS	ENS	LTJG	LT	TOTAL
1	937	0	0	937
2	1018	0	0	1018
3	6	1022	0	1028
4	1	903	0	904
5	0	43	640	683
6	0	0	565	565
7	0	0	471	471
8	0	0	391	391
9	0	0	343	343

**Figure 1** Example of Inventory Matrix of YG 1983 Surface Community, White Ethnic Group

YOS	LTJG	LT
2	1016	0
3	2	0
4	0	639
5	0	19

**Figure 2** Example of Promotion Matrix of YG 1983 Surface Community, White Ethnic Group

## **E. DETERMINATION OF LOSS AND PROMOTION RATES**

In order to study the career patterns of the cohorts in terms of loss and promotion rates, the analysis was carried out in three stages. The first stage computed the individual YOS rates for each year group cohort. Since the itemized accounting of rates in the first stage was too detailed to observe trends, it was decided to compute average rates across year groups for each YOS in the second stage. The analysis of these average rates focused on rate trends by YOS but it also proved to be difficult to analyze ethnic and gender differences. In the final stage YOS cells were grouped by career milestones thereby creating six or seven significant career periods within a career for each particular community. Then rates were computed for each significant period, for each year group. Average rates across year groups for each significant period were also computed so as to provide an averaged baseline against which to compare year group rates. A more comprehensive explanation of these stages is given in the following sections.

### **1. Individual Rates by YOS and YG**

#### **a. Loss Rates**

Loss rates were computed for each YOS within a YG cohort. Referring to Figure 1, the loss rate for YOS 4 is computed as the total loss occurring between the beginning inventory total of YOS 4 and the beginning inventory total of

YOS 5 divided by the beginning inventory total of YOS 4. This equates to  $(904-683)/904$  or 0.244 which is interpreted as a 24.4 percent loss rate occurring in YOS 4. Rates for all YOS's were computed in this manner for each year group.

Inventory and loss data for each of the matrices were consolidated into tables by community and ethnic or gender group. Appendix B contains inventories and Appendix C contains losses. Loss rates were similarly consolidated and are provided in Appendix F.

#### ***b. Promotion Rates***

The promotion rates were computed by using both the inventory and promotion matrix tables. For example, in Figures 1 and 2, the number of lieutenants junior grade who were promoted to lieutenant during their YOS 4 was 639. This number was then divided by the inventory of lieutenants junior grade in YOS 4 or 903. The ratio equates to a promotion rate of  $639/903$  or 0.708. Therefore, 70.8 percent of the lieutenants junior grade in YOS 4 were promoted to lieutenant.

Occasionally, promotions occurred in two grades in the same YOS. In these cases, only the promotion rate for the higher grade was computed. Being promoted early to the higher grade rather than late to the lower grade reflects a more significant aspect of career progression. Appendices D and E contain promotion-eligible and promotion data, respectively. Promotion-eligibles are those officers in a YOS/grade category

who can be promoted to the next grade. In the example, above the promotion-eligible inventory is 903 which is the number of lieutenants junior grade in YOS 4 who can be promoted to lieutenant. Appendix G contains the promotion rates.

***c. Effect of Lateral Movement on Loss and Promotion Rates***

Personnel flows within a cohort involve the entering and leaving of individuals within YOS categories. As a result, inventory levels can increase or decrease from one YOS to the next depending on the amount of lateral movement, losses, and gains that occur. Losses include such factors as leaving active duty or the Navy altogether (for whatever reason), death, or transferring into another community. OPIS has separate loss and transfer in/out files, but the transfer data proved to be inconsistent when compared to the inventory data so these files were not used. Instead, losses were computed from the inventory file as the difference between successive YOS within a cohort. Any transfers into the community cohort could then offset or even overwhelm the number of transfers out of the community and thereby diminish the total effect of losses in terms of a loss rate. In some cases the inventory level actually increased from one YOS to the next one.

In theory, officers may laterally move between communities at any time, but generally transfers occur in the



early YOS's (1-6) before one's career path is fully entrenched. It is possible then that the true loss rate, especially in the early YOS categories, is underestimated. However, because this study focuses on community representation, the objectives will be met by analyzing the net effect between successive YOS categories. Figure 1 (refer to section D) also illustrates that if the inventory levels increase from one YOS to the next then the loss rate is taken to be zero

Promotion rates are similarly affected by lateral movement in and out of the community. OPIS records all promotions that occur in a YOS/grade category and any officers that transfer into the community after the beginning of the fiscal year will be included in the promotion file. Since promotion rates are computed by dividing the number of promotions to the next grade in a YOS/grade category (as obtained from the OPIS promotion file) by the number of officers in that YOS/grade category, the number of officers that are promoted could reflect a higher number than what was there at the beginning of the year. For example, there is a high incidence of lateral transfers in the GenURL community, especially in the early years of service. As such, it is not uncommon to have a promotion rate that exceeds 100 percent for promotion to lieutenant junior grade amongst some of the cohorts.

## 2. Average Rates by YOS

An average rate across all year groups available was computed for each YOS. The average rate can be used as a reference to compare the individual year group rates in order to determine how much promotion or loss rates were changing across year groups.

The estimating of a single set of rates over several year groups is accomplished by computing the ratio of total losses over the total inventories. For example, for the year groups 1972 through 1987, the average loss rate for YOS 4 in the surface community, white ethnic group (refer to Appendices B and C) was computed by dividing the sum of all losses occurring by the sum of all inventories as shown below:

$$\begin{aligned} & \frac{227+223+174+259+229+180+169+250+345+289+293+221+186+361+311+357}{1060+902+864+1102+1037+1101+968+1078+1090+993+1109+904+845+1270+1122+1217} \\ &= \frac{4074}{16,662} \\ &= 0.245 \end{aligned}$$

The average promotion rate is similarly computed using promotion-eligible data in the denominator and promotion data in the numerator. Promotion rates were restricted to single grade promotions in each year of service in order to keep separate, for instance, promotion rates to LTJG and promotion rates to LT in YOS 3. Whenever such overlaps in promotions occurred, only the promotion rate to the higher grade was computed. Loss rates and promotion rates averaged across year groups are included in Appendices H and I, respectively.

### 3. Milestone Period Rates

Finally, to further examine career prospects, rates were combined to reflect six or seven significant YOS periods within each community. These periods were selected to reflect significant milestones within the career path of each community. For that reason they will be referred to as "milestone periods." Promotion windows, loss rate trends, leadership tours, end of obligatory requirements, retirement, etc., provided the framework in which to formulate these milestone periods. The 1990 edition of The Naval Officer's Career Planning Guidebook and discussions with officers in the various communities analyzed were used in defining the periods. The "Officer's Guidebook" contains figures depicting the professional development paths for each community and was the primary source used for this purpose. As the "Officer's Guidebook" points out, the figures "are included only to illustrate the general progression of assignments and promotions which [an officer] can expect. No two officers will follow identical career patterns; however, on the average, the successful [officer] will meet most of these career milestones in about the same sequence indicated." While this type of classification into milestone periods may oversimplify the normally complex career path of a naval officer, it serves the purpose of focusing on loss and promotion rates during critical junctures and thereby highlighting differences in those rates.

Combined rates were computed by milestone period for each year group. Also, rates were averaged for each milestone period across several year groups. These rates were calculated in the same manner as the average rates in Section 2 above. Loss rates and promotion rates by milestone period averaged across year groups are contained in Appendices J and K, respectively. Loss rates and promotion rates by milestone period and year group are contained in Appendices L and M, respectively.

**a. Milestone Periods for Surface Warfare Community**

The career path for the Surface Community (which includes both conventional and nuclear surface career paths) was broken down into seven milestone periods as follows:

<u>Milestone Period</u>	<u>Years of Service</u>	<u>Year Groups</u>
1	1 - 2	1975 - 1989
2	3 - 6	1973 - 1985
3	7 - 11	1969 - 1980
4	12 - 17	1964 - 1974
5	18 - 20	1960 - 1971
6	21 - 26	1960 - 1965
7	27 - 30	1960 - 1961

The year groups involved in the computations for each milestone period are also shown above. Not all of the year groups could be used in each milestone period because of the obvious limitations on data availability for all the year groups.

Milestone period 1 is characterized by a period of initial training. This training includes Surface Warfare

Officer's School and follow-on training for Engineering Officer of the Watch, Nuclear Power School or functional training related to specific billet assignments, as applicable. YOS 2, which is included in this milestone, is a period that overlaps both training and the first sea tour. Since it also covers a promotion period from ENS to LTJG, it is included in this first milestone period to distinguish it from the LTJG/LT tour in milestone period 2.

Milestone period 2 involves the significant events of the first sea tour, division officer tour and promotion to LT. It also includes the end of the typical four- or five-year, initial obligatory service incurred by the majority of officers and the screening process for department head.

Milestone period 3 includes further training (department head, graduate education, etc.), the department head tour afloat, and promotion to LCDR.

Milestone period 4 contains the XO afloat tour, promotion to CDR, and major shore tour.

Milestone period 5 contains the CDR command tour and the 20-year retirement period of eligibility. At this point, LCDRs denied continuation generally retire from the Navy.

Milestone period 6 involves significant tours ashore, promotion to CAPT, and major command tours.

Milestone period 7 continues with major command and shore tours leading to selection to Admiral.

**b. Milestone Periods for General Unrestricted Line  
(GenURL) Community**

The General Unrestricted Line community provides the Navy with a community of officers who manage the fleet support establishment. Their career path was divided into seven periods as follows:

<u>Milestone Period</u>	<u>Years of Service</u>	<u>Year Groups</u>
1	1 - 2	1975 - 1989
2	3 - 6	1973 - 1985
3	7 - 11	1969 - 1980
4	12 - 16	1964 - 1975
5	17 - 20	1960 - 1971
6	21 - 25	1960 - 1966
7	26 - 30	1960 - 1961

The year groups involved in the computations for each milestone period are also given above:

Milestone period 1 includes the initial period of training related to specific billet assignments, partial first tour and promotion to LTJG.

Milestone period 2 involves the division officer tour, end of obligatory service requirements and promotion to LT.

Milestone period 3 contains the department head tour, promotion to LCDR and screen for XO.

Milestone period 4 includes the XO tour, promotion to CDR, and commander command screen.

Milestone period 5 consists of the CO tour, 20-year retirement period of eligibility and promotion to CAPT.

Milestone period 6 contains major shore command and also CAPT promotion.

Milestone period 7 continues with major command and shore tours leading to selection to Admiral.

***c. Milestone Periods for Aviation Warfare Community***

The career path for the Aviation Warfare Community which includes pilots, NFOs and aviation generalists was broken down into six milestone periods as follows:

<u>Milestone Period</u>	<u>Years of Service</u>	<u>Year Groups</u>
1	1 - 2	1975 - 1989
2	3 - 7	1973 - 1984
3	8 - 12	1968 - 1979
4	13 - 18	1963 - 1973
5	19 - 25	1960 - 1966
6	26 - 30	1960 - 1961

The year groups involved in the computations for each milestone are also given above:

Milestone period 1 includes the initial student pilot or NFO training and follow-on training at the Fleet Readiness Squadron. It also covers the promotion cycle from ENS to LTJG.

Milestone period 2 covers the significant events of the first squadron tour, division officer tour, shore tour and the end of obligatory service for flight training. It also includes the LT promotion.

Milestone period 3 involves follow-on sea tours with emphasis on the squadron department head tour. This period covers the LCDR promotion.

Milestone period 4 includes promotion to CDR, screen for command and squadron XO/CO tour.

Milestone period 5 contains major sea or shore command and senior shore tours. It also includes promotion to CAPT and the 20-year retirement period of eligibility.

Milestone 6 continues with major command and shore tours leading to selection to Admiral.

***d. Milestone Periods for Submarine Warfare Community***

The Submarine Warfare Community consists of nuclear trained submarine officers and general submarine officers (GSO). Their career path was divided into seven periods as follows:

<u>Milestone Period</u>	<u>Years of Service</u>	<u>Year Groups</u>
1	1 - 2	1975 - 1989
2	3 - 7	1973 - 1984
3	8 - 12	1968 - 1979
4	13 - 16	1963 - 1975
5	17 - 20	1960 - 1971
6	21 - 24	1960 - 1967
7	25 - 30	1960 - 1961

The year groups involved in the computations for each milestone period are also given above:

Milestone period 1 includes the initial training period (nuclear power school, nuclear prototype training, submarine officer basic course and, prior to 1985, GSO training) and promotion to LTJG.

Milestone period 2 covers the first sea tour, division officer tour, shore tour and the end of the



obligatory service requirement. It also includes promotion to LT and screen for department head (after 1985).

Milestone period 3 involves the department head sea tour, promotion to LCDR and screen for XO.

Milestone period 4 includes the XO sea tour, promotion to CDR and screen for CO.

Milestone period 5 includes CO tour, promotion to CAPT and the 20-year retirement period of eligibility.

Milestone period 6 covers senior shore and major command tours and also promotion to CAPT.

Milestone period 7 continues with major command and senior shore tours leading to selection to Admiral.

## **V. ANALYSIS**

### **A. INTRODUCTION**

The oldest of the four communities studied, the Surface Warfare community, has a long and established career path, substantial population sizes throughout the year groups and years of service (primarily with the White ethnic group) and reasonably good ethnic representation. For these reasons, the surface community was studied and analyzed first in order to develop the methodology. The General Unrestricted Line community is presented second because of its strong gender representation, followed by the Aviation and Submarine communities.

#### **1. Analysis of Rates**

This chapter is organized by community as described in the preceding chapter and further broken down by analysis of the various types of loss and promotion rates for the ethnic (Black, Hispanic) and gender (female) groups considered. Data and supporting graphs used in the analysis are included in Appendices H through Q and will not be individually referenced in the subsequent sections.

An analysis of loss rates averaged across year groups is included for every year of service because losses do occur in every year of service. On the other hand, promotions occur

mostly during "windows", and, therefore, it is best to analyze them by milestone period only. However, promotion rates averaged across year groups are included in Appendix I for general reference.

## **2. Effect of Population Size on Analysis**

Unfortunately, the breakdown of communities by year groups and by ethnic or gender classification often reduces the community cohorts into very small populations. As the cohorts increase in age they continue to decrease in size because of losses and can eventually reach a size not conducive to statistical study. Generally, the rates are considered to be inadequate for further analysis when the population size used in computing the rates falls into a range somewhere below five or ten. Nevertheless, even these rates are included in the study, in order to establish a methodology and provide background data for possible future studies. Conclusions, however, will not be drawn about rates whenever the population size drops below that level.

## **B. ANALYSIS OF SURFACE WARFARE COMMUNITY**

Available inventory levels do not reach above ten until YG 1970 for Black officers and YG 1977 for both Hispanic and female officers. Each milestone period reflects a promotion rate to one paygrade only. Specifically, period 1 includes promotion to LTJG, period 2 to LT, period 3 to LCDR, period 4 to CDR, periods 5 and 6 to CAPT and period 7 to Flag.

## **1. Black Officers**

### **a. Black Loss Rates**

Comparing loss rates for Black officers to those of White officers for each year of service averaged across available year groups, it appears that Black officers have higher loss rates in the first three years of service and then have lower loss rates for the next four years of service. Black loss rates are higher again for YOS 8-11 and then alternate from YOS 12 to 15 between higher and lower rates than Whites. Starting with YOS 15, Blacks show again higher loss rates up through YOS 24 except for YOS 20 and 22. Beyond YOS 24 population sizes become too small to draw any conclusions.

The loss rates, as grouped into milestone periods indicate that Blacks experience somewhat higher loss rates during the initial training period (milestone period 1), during the "department head tour" (milestone period 3) and during the "XO period" (milestone period 4). Blacks have lower loss rates during the "division officer tour" (milestone period 2). In addition, they have lower rates during milestone periods 5 and 6 as well. Milestone 7 has too small of a population to warrant conclusions.

Comparing individual year group milestone loss rates for milestone period 1 shows that Blacks have higher loss rates than White officers in every YG except 1975, 1978,

1979 and 1989. In milestone period 2 Blacks have lower loss rates in all year groups except 1973, 1974, 1981 and 1985. Milestone periods 3 and 4 show no discernable increasing/decreasing trends from one year group to the next. Milestone period 5 shows a consistently lower rate pattern in the last three year groups studied (1969 - 1971) for Blacks compared to Whites. Milestone period 6 and 7 have small population sizes and analysis was not conducted.

**b. Black Promotion Rates**

Overall, Blacks demonstrate lower average promotion rates in milestone periods 1, 3 and 4 than those of White officers. Blacks have comparable average rates in milestone period 2 and substantially higher rates in milestone periods 5 and 6. However, the small population size in milestone period 6 may be artificially inflating the promotion rate. Analysis of milestone period 7 could not be accomplished because of small or nonexistent populations.

In milestone period 1, Blacks have slightly but consistently lower promotion rates than Whites with the exception of YGs 1975, 1978, 1979 and 1987. The promotion rate for Blacks in milestone period 2 fluctuated from being lower in YGs 1973 and 1974, then higher in YGs 1975 - 1978, then lower in YGs 1979 - 1982, then higher in YG 1984, ending lower in YG 1985. The promotion rates for milestone period 3 are higher for YG 1970 through YG 1975 and are lower for the

last five year groups studied (1976 - 1980) with the notable exception of YG 1979. The rates in milestone period 4 do not appear to follow a trend. Analysis for milestone periods 5 - 7 was not conducted because of small population sizes.

## **2. Hispanic Officers**

### **a. Hispanic Loss Rates**

Average Hispanic loss rates are higher than those of White loss rates in the first six years of service except for YOS 4. The rates are lower for YOS 7 through 10 except for YOS 9 and then are higher for the next three years of service. No losses appear to occur in YOS 14, 16 and 17 probably because of small inventory figures. Higher rates are registered in YOS 15, and 18-21; however, the number of officers in these categories is small.

Hispanics show the same pattern as Surface Warfare Blacks for the first three milestone periods in that they have higher loss rates during milestone periods 1 and 3 and lower loss rates in milestone period 2. They differ in milestone period 4, where Hispanics show a slightly smaller loss rate as compared to White officers. Milestone 5 indicates a significant increase in loss rate, although the population size in milestones 5 through 7 are very small, which probably is inflating the loss rate.

Hispanic loss rates are unevenly distributed throughout the year groups as compared to White loss rates for

milestone period 1. Between YGs 1980 and 1985, Hispanics have higher loss rates with the exception of YG 1982, but since YG 1986 they show no losses. In milestone period 2 they had substantially lower rates for YGs 1974 - 1977. YGs 1978 - 1981 show higher rates. In the last four year groups studied (1982 - 1985), Hispanics have lower rates, with the exception of YG 1983. In milestone period 3, Hispanics appear to have substantially higher loss rates in YGs 1970 to 1972, but this is probably due to small population sizes. From YG 1975 to YG 1980, they have higher loss rates except for YGs 1977 and 1979. Milestone periods 4 through 7 have small population sizes and therefore analysis was not conducted.

***b. Hispanic Promotion Rates***

Hispanics show lower promotion rates in milestone periods 1, 3, 4, and 5. They have a slightly higher promotion rate in milestone period 2. The notably higher promotion rate in milestone period 6 is probably due to a small population size. Analysis of milestone period 7 could not be accomplished because of small or nonexistent populations.

In milestone period 1, Hispanics have higher or even rates compared to White rates in YGs 1976 -1982. In YGs 1983 - 1986, they have lower or even rates as in the case of YG 1984. In the last three year groups studied (1987 - 1989), the rates are higher. In milestone period 2, the rates are distributed unevenly with no discernable trend noted. The

rates are higher in YGs 1972 - 1974 but then, with the exception of YG 1976, are all lower than White rates in the last six year groups studied (1975 - 1980). Analysis of milestone periods 4 - 7 was not conducted because of small population sizes.

### **3. Female Officers**

#### **a. Female Loss Rates**

Comparing loss rates for each year of service as averaged across year groups, Surface Warfare females experience higher loss rates in the first two years of service but show substantially lower rates for YOS 3 through YOS 6 as compared to male officers. At YOS 7-9 the rates are substantially higher, then return to levels below those of males for YOS 10 and 11. YOS 12-15, except YOS 14, show higher rates, but the population size is small. Beyond YOS 15 loss rates appear to be nonexistent, because of small or zero population size.

Overall, female officers have higher loss rates in milestone periods 1 and 3 and a lower loss rate in milestone period 2. Milestone periods 4 - 7 were not analyzed because of small population sizes.

Comparing the individual year group milestone loss rates for female officers to male officers for milestone period 1, female officers do not show an increasing or decreasing trend from one year group to the next. Whereas, in



milestone period 2, females have lower loss rates, the rates for more recent year groups are increasing over time. In milestone period 3, loss rates increase from YG 1974 to YG 1976, and then show a decreasing trend from YG 1978 to YG 1980.

**b. Female Promotion Rates**

Female Surface Warfare officers have higher promotion rates than their male counterparts in milestone periods 1 and 2. However, these two milestone periods are comprised of YOS categories that are affected by lateral transfers into the community, as can be observed in the inventory tables (Appendix B). This effect may have an influence on the rates by artificially inflating them. Milestone period 3 rates are comparable to male rates, whereas milestone period 4 shows a lower rate for females. Because women have only been in the community since the mid 1970's they have not been around long enough to be present in the senior paygrades in sufficient numbers to warrant analysis beyond milestone period 3.

In milestone period 1, the promotion rates in YGs 1978 - 1979 are artificially high as a result of lateral transfers into the community. Higher and lower rates for females are about equal through YGs 1980 - 1989. In milestone period 2, the "transfer effect" is also seen in YGs 1976 - 1978. With the exception of YG 1984, females have higher

promotion rates in YGs 1976 - 1985. However, the population size is too small in YGs 1975 or earlier to warrant analysis. In milestone period 3 females have higher promotion rates in the last five year groups studied (1976 - 1980). Analysis was not conducted for milestone periods 4 - 7 because of small population sizes. YG 1975 has a substantially lower promotion rate for female officers as compared to their male counterparts in that year group. Rates in YGs 1974 and earlier have small or zero population sizes that precludes further analysis.

#### **4. Summary**

The results indicate Black officers have higher loss rates and lower promotion rates compared to White officers in milestone periods 1, 3 and 4 in the Surface community. Hispanic officers have higher loss rates and lower promotion rates compared to White officers in milestone periods 1, 3 and 5, as well as, lower promotion rates in milestone period 4. Female officers have higher loss rates in milestone periods 1 and 3 and lower promotion rates in period 4 compared to male officers.

#### **C. ANALYSIS OF GENERAL UNRESTRICTED LINE COMMUNITY**

The Black population size in the GenURL community did not reach a value of ten or higher until YG 1972. Only three year groups, 1985, 1986 and 1989, had an Hispanic population of ten or greater. Eight of the year groups prior to 1972 had no

representation and the remaining four had a population size of one. The GenURL community has historically consisted of mostly women, thus the male population becomes the "minority" in this community. Five year groups, 1960 - 1963 and 1966, have available inventories of male officers less than ten. (1962 also has a female population size of less than ten.)

Each milestone period reflects a promotion rate to one paygrade only. Specifically, period 1 includes promotion to LTJG, period 2 to LT, period 3 to LCDR, period 4 to CDR, periods 5 and 6 to CAPT and period 7 to Flag.

## **1. Black Officers**

### **a. Black Loss Rates**

Average loss rates across year groups for the GenURL community indicate that Black officers have lower rates for the first seven years of service as compared to White officers. The rates alternate from YOS 8 to YOS 14 with YOS 11 showing a substantially higher loss rate compared to White officers in that category. From YOS 15 to YOS 20 Blacks experience no loss rates except for large peaks at YOS 16 and YOS 20. The population size diminishes or is nonexistent beyond YOS 20 and therefore precludes further analysis.

The loss rates, as grouped into milestone periods, indicate that Blacks experience lower rates during the first two milestone periods. For the next two milestone periods, periods 3 and 4, Blacks have higher loss rates relative to

White officers. Black loss rates are substantially lower than those of White officers in milestone period 5 and then increase to above the rate of White officers in milestone period 6. Analysis was not conducted for milestone period 7 because of small population sizes.

Comparing individual year group milestone loss rates for milestone period 1 shows that Blacks experience losses in only five of the 15 year groups included in the computations as compared to White officers. Of those five year groups that show losses, two year groups have lower rates, (YGs 1981, 1982) and two year groups have higher rates (YGs 1984, 1986). In milestone period 2, loss rates for Black officers were lower in every year group except YG 1979, as compared to white officers. The population sizes become too small in each year group for milestone periods 4 - 7 to continue analysis.

#### ***b. Black Promotion Rates***

In comparing promotion rates, averaged across year groups in the milestone periods, Black officers have higher promotion rates in the first two periods as compared to White officers. Blacks appear to have lower promotion rates in milestone periods 3 and 4 and then have a higher rate in milestone period 5. There is a zero promotion rate for Black officers in milestone period 6; however, both milestone periods 6 and 7 have small or zero population sizes.

As for the promotion rates among the various year groups in milestone period 1, Black officers have higher rates than White officers in every year group studied except for YG 1989. The last three year groups indicate a decreasing trend in promotion rates as compared to an increasing trend noted in White promotion rates. In milestone period 2 Black officers have higher promotion rates in nine of the 13 year groups for which promotion rates were computed, with no increasing or decreasing trend noted. Of the last five year groups used in the computations for milestone period 3, Black officers have substantially lower promotion rates in four of the year groups (YGs 1976, 1978 - 1980). Prior to YG 1976, Blacks have higher promotion rates in four of six year groups studied. In milestone period 4, the promotion rate for Black officers fluctuated between YG 1970 and YG 1975 and were lower in four of these six year groups. Analysis was not conducted for year groups prior to YG 1970 due to small population sizes. Also, analysis was not conducted for milestone periods 5 - 7 because of small population sizes.

## **2. Hispanic Officers**

### ***a. Hispanic Loss Rates***

Initially, Hispanics show no loss at YOS 1 (probably because of the "transfer effect") but then have higher loss rates for the next twelve years of service except for a significant lower rate at YOS 5 and a zero loss rate at

Beyond YOS 12, the population size is too small to continue analysis.

Comparing milestone period loss rates between Hispanic and White officers, Hispanic loss rates alternate between slightly higher rates in milestone period 1, slightly lower in milestone period 2 and then slightly higher again in milestone period 3. Milestone periods 4 - 7 have small population sizes that preclude further analysis.

The small Hispanic population in the GenURL community (only three year groups had inventories of ten or more officers) made analysis of milestone loss rates for each of the year groups difficult. In milestone period 1, Hispanics have higher loss rates than White officers in YGs 1977 - 1981, however, these year groups have small population sizes. From YG 1982 to YG 1989, Hispanics have zero loss rates except for YG 1985 and YG 1989, which have higher rates than White officers in those year groups. In milestone period 2, higher/lower loss rates are distributed across the year groups with no trend noted. Loss rates in milestone period 3 reflect small population sizes in the year groups studied, and no conclusions can be made as a result.

#### ***b. Hispanic Promotion Rates***

Hispanic officers initially have higher promotion rates in milestone period 1 and then have slightly lower promotion rates in the next milestone period as compared to

White officers. They then have higher rates in milestone period 3 but fall below the rates of White officers in milestone period 4. Beyond milestone period 4, the population size becomes too small to continue analysis.

Comparing Hispanic promotion rates across the year groups in milestone period 1, shows that Hispanics have either higher rates or rates that are only slightly below those of White officers in almost every year group with the exception of YG 1978, which has a substantially lower rate. (YG 1988 has no Hispanic population). In milestone period 2, higher/lower promotion rates alternate between the first half of the year groups studied and then show a period where Hispanic promotion rates are consistently lower (YGs 1981 - 1984). YG 1985 has a notably higher Hispanic promotion rate as compared to White officers in this milestone period. The population sizes become too small in the remaining milestone periods to warrant further analysis.

### **3. Female Officers**

#### **a. Female Loss Rates**

Female officers have lower average loss rates in every year of service except YOSs 20 and 25-27 as compared to the minority male officers. Analysis was stopped at YOS 28 because of small male population sizes. The corollary to these findings is that males have substantially higher loss rates in almost every YOS in the GenURL community.

Female officers show lower loss rates in every milestone period except for period 7. Female and male loss rates are substantially different in milestone periods 2, 3, 4 and 6.

Examining the breakdown of gender loss rates by year group in milestone period 1, shows that females exhibit loss rates in every year group, whereas males have loss rates in only seven of the 15 year groups used in the computations (YGs 1975, 1976, 1980, 1982, 1983, 1988 and 1989). However, females have lower loss rates, overall, when averaged across year groups, with higher loss rates in only two year groups (YGs 1976, 1980). In milestone period 2, females have a fairly consistent loss rate across all year groups and, without exception, have lower loss rates than their male counterparts. Males, on the other hand, show an increasing trend in loss rates in the last four year groups studied (YGs 1982 - 1985). In milestone period 3, females, again, have substantially lower loss rates in every year group studied as compared to male officers. Overall, female officers experience small loss rates during milestone period 4 and, except for YGs 1965 - 1967, they have lower rates than male officers. In milestone period 5, female officer loss rates are fairly consistent except for a peak at YG 1966. Of the ten year groups studied in milestone period 5, female loss rates are higher than male loss rates in only three year groups (1966, 1968, 1970). The loss rates fluctuate in size



from one year group to another. In milestone period 6, female officers have lower loss rates in every year group except YG 1960, in which the rates are even with those of male officers. In milestone period 7 females have a slightly higher loss rate than male officers in one of two year groups studied (YG 1961). The other year group (YG 1960) had a zero population of both male and female officers.

**b. Female Promotion Rates**

Comparing milestone period promotion rates with male officers, shows that females have higher promotion rates in six of the seven milestone periods, the exception being the first milestone period. The first milestone period generally experiences numerous transfers of males into the community, and the higher promotion rate for males during this period may be influenced by this "transfer effect".

In milestone period 1, females have lower promotion rates in eight of 15 year groups studied. A trend is beginning to develop over the last three year groups (1987 - 1989). however, where the rates for males and females are about equal. In milestone period 2, promotion rates for females are higher in nine of 13 year groups studied with the difference between male and female rates being noticeably large in the last four year groups studied (1982 - 1985). Female officers have dramatically higher promotion rates than their male counterparts in every year group in milestone

period 3. In milestone period 4, higher/lower female promotion rates alternated from YG 1964 to YG 1967. Then, from YG 1968 to YG 1975 (the last eight year groups used in the computations), females have substantially higher promotion rates than males. Early promotion to Captain is contained in milestone period 5, and in that period promotions occurred in only three year groups for females (1967, 1969, 1970) and did not occur in any year groups for males. There is an overall decreasing trend in promotion rates for females in milestone period 6, but they have higher promotion rates than males for five of seven year groups. Males have slightly higher promotion rates in YGs 1964 and 1966. Analysis of milestone period 7 was not conducted because of small population sizes.

#### **4. Summary**

In the GenURL community, Black officers have higher loss rates and lower promotion rates compared to White officers in milestone periods 3 and 4, as well as, in milestone period 6, although period 6 has a small population size. Hispanic officers have higher loss rates compared to White officers in milestone periods 1 and 3 and lower promotion rates in periods 2 and 4. Female officers have higher loss rates in period 7 and lower promotion rates in period 1 compared to male officers. An opposite view to this finding is that male officers have higher loss rates and

corresponding lower promotion rates in milestone periods 2, 3, 4, 5 and 6.

#### **D. ANALYSIS OF AVIATION WARFARE COMMUNITY**

Available inventory levels for Black officers in the Aviation community first reached a size of ten in YG 1972. The Hispanic population size was greater than ten in only YGs 1975 and 1977 and continued above ten from YG 1980 on. The population size for females was at or greater than ten commencing with YG 1977.

Each milestone period reflects a promotion rate to one paygrade only. Specifically, milestone period 1 includes promotion to LTJG, period 2 to LT, period 3 to LCDR, period 4 to CDR, period 5 to CAPT and period 6 to Flag.

##### **1. Black Officers**

###### **a. Black Loss Rates**

Black officers in the Aviation community have higher average loss rates in the first five years of service with the rates in YOSs 1-3 being substantially higher than those of White officers. The rates become lower in the next three years of service (6-8). From YOS 9 to YOS 16, the rates are higher with the exception of YOS 12 and YOS 17. The rates then alternate with YOS 20 showing a substantially higher loss rate than that of White officers in the same year of service.

Analyzing milestone period loss rates shows that Black officers have a substantially higher rate as compared to

White officers in milestone period 1 and have slightly higher rates in milestone periods 2 and 3. The loss rate is again higher for Blacks in milestone period 4. Milestone period 5 shows lower Black loss rates than those of White officers. Blacks have a zero population size in milestone period 6.

In milestone period 1, Blacks have higher loss rates as compared to White officers in every year group studied except for YG 1988. While White loss rates remained somewhat consistent throughout the year groups, Black loss rates cycled from a high in YG 1975, then decreased down through YG 1983 and then increased through YG 1987. YGs 1988 and 1989 have smaller loss rates compared to all other Black year group loss rates in this milestone period. In milestone period 2, Blacks have higher loss rates compared to White officers in eight of 12 year groups included in the rate computations. YGs 1975, 1976, 1979, and 1980 are the exception and the rates in these year groups are notably lower than White loss rates. The last four year groups studied, (1981 - 1984) have higher loss rates than White officers but are decreasing in magnitude. The loss rates for Black officers in milestone period 3 fluctuate from one year group to the next. Loss rates for Black officers are higher in the last three year groups studied (1977 - 1979) as compared to White officers. In milestone period 4, Blacks experience loss rates in only five of 11 year groups studied with four of the five year groups showing higher loss rates than those of White

officers. White officers during this period experience consistently small loss rates. The variability of Black rates is probably due to small population sizes. The small population sizes in milestone periods 5 and 6 preclude further analysis.

**b. Black Promotion Rates**

Black officers have lower average promotion rates as compared to White officers in milestone periods 1 through 4, albeit the difference in the rates is slight in periods 2 and 3. It appears that Blacks have much higher promotion rates than White officers in milestone period 5; however, both milestone periods 5 and 6 have small population sizes, resulting in tenuous results.

In milestone period 1, Blacks have lower promotion rates in every year group except YG 1986 as compared to White officers. In milestone period 2, promotion rates fluctuate between being higher or lower than those of White officers from one year group to the next. However, in the last four year groups studied (1981 - 1984), Blacks have substantially lower rates in three of the year groups (YG 1982 has a slightly higher rate). Promotion rates fluctuate from year group to year group again in milestone period 3, but the differences in rates are somewhat more pronounced. Starting with YG 1970, Blacks have lower rates than White officers in three of four year groups (the rates are even in YG 1971),

then have higher rates from YG 1974 to YG 1976 and end with lower rates in the last three year groups studied (1977 - 1979). YGs 1963, 1970, and 1971 registered zero promotion rates in milestone period 4. Of the remaining eight year groups studied, Black officers in five year groups have higher promotion rates than White officers and one year group shows even rates between the two groups of officers. Analysis was not conducted on milestone periods 5 and 6 because of small population sizes.

## **2. Hispanic Officers**

### **a. Hispanic Loss Rates**

Hispanic officers have substantially higher average loss rates in the first two years of service as compared to White officers. For the next six years of service, they have equal or lower rates with the exception of YOS 4. The rates become higher from YOS 9 to YOS 14 with the exception of YOS 13. Rates are lower from YOS 15 to YOS 21. Rates are then higher in YOS 22-25 except for YOS 23. Beyond YOS 23 the population size becomes too small to draw further conclusions.

Analyzing milestone average loss rates shows that Hispanic officers experience higher loss rates in all six periods, albeit the difference between Hispanic and White loss rates is slight in milestone periods 2 and 4. Analysis was not conducted on milestone periods 5 and 6 because of small population sizes.

In milestone period 1, Hispanics have higher loss rates in every year group studied except for YGs 1981, 1983, and 1985. In milestone period 2, Hispanics initially have higher loss rates as compared to White officers in the first three year groups studied (1973 - 1975) and then have lower or zero loss rates in the next three year groups (1976 - 1978). The rate is higher in YG 1979 but then becomes lower for the next four year groups (1980 - 1983) and ends with a substantially higher rate in the last year group studied (1984). In milestone period 3, the loss rates for Hispanic officers are higher than those of White officers in the first five year groups (1968 - 1972). Loss rates of zero for Hispanic officers are registered in the next three of four year groups (1973, 1974, 1976). Hispanic loss rates are higher in YGs 1975, 1977 and 1978, and end up noticeably lower in YG 1979. In milestone period 4, Hispanics have positive loss rates in four of the 11 year groups (1966, 1969, 1970, 1973) and all of those rates are higher than those of White officers. However, the population sizes are very small in each of the individual year groups, resulting in tenuous analysis. The same is true for milestone periods 5 and 6; therefore, analysis was not continued.

***b. Hispanic Promotion Rates***

Comparing Hispanic average promotion rates to those of White officers across the milestone periods shows that

Hispanics have lower average promotion rates in four of the five periods in which they have a population size. The exception is milestone period 3 where they have a slightly higher rate as compared to White officers. Milestone periods 5 and 6 could not be analyzed because of small or zero population sizes.

In milestone period 1, Hispanics have lower or even promotion rates compared to White officers in most of the year groups except for YGs 1979, 1983, 1986. In milestone period 2, Hispanic promotion rates fluctuate slightly among the various year groups. The biggest difference in rates is seen in YG 1979. The last two year groups studied (1983 and 1984) have lower promotion rates for Hispanic officers as compared to White officers. In milestone period 3, Hispanics appear to have higher loss rates in the last six of seven year groups studied (the exception is YG 1978). Prior to YG 1973, Hispanics have lower promotion rates in every year group studied. The population sizes become too small in the individual year groups to continue with the analysis in milestone periods 4 - 6.

### **3. Female Officers**

#### **a. Female Loss Rates**

With the exception of YOS 3, compared to males, females experience lower average loss rates in the first seven years of service. They then have higher loss rates from YOS



8 to YOS 11. Loss rates are almost even at YOS 12, substantially higher at YOS 13 and YOS 15 and zero for YOSs 14, 16-18. The population size was very small in the latter three years of service and zero beyond YOS 20.

Comparing female average milestone loss rates against those of White officers in each of the milestone periods, female officers have lower average loss rates in milestone periods 1 and 2 and then have substantially higher loss rates in milestone periods 3 and 4. However, the population sizes in milestone periods 4 - 6 are quite small or even zero and so do not warrant further analysis. The lower loss rates in milestone period 1 and 2 may be influenced by the "transfer effect" since inventory levels actually increased in some of the late 1970's and early 1980's year groups because of an influx of females transferring into the community.

Zero loss rates for female officers were registered in YGs 1975, 1977 - 1980 and 1985 probably because of the "transfer effect" in milestone period 1. Loss rates were lower for females as compared to males in YGs 1981 - 1983 and become higher in YG 1984. In the last four year groups studied, the loss rates fluctuated, starting lower in YG 1986 and ending higher in YG 1989. In milestone period 2, there was a zero population size in YG 1974. Of the remaining 11 year groups studied, only four had higher loss rates for female officers as compared to male officers (1976, 1977,

1982, 1984, the last year group used in the computations). In milestone period 3, the population size was too small or zero in year groups prior to YG 1975, with the exception of YG 1973, to warrant analysis. Of the remaining six year groups, YG 1976 has a slightly higher loss rate for females as compared to males, and YGs 1977 and 1979 (the last year group studied) have substantially higher loss rates.

**b. Female Promotion Rates**

Of the four milestone periods in which females have a population size large enough for analysis, women show higher average promotion rates than men in three of the periods (1, 2 and 4). The exception is milestone period 3, in which females have lower average promotion rates than their male counterparts. Milestone periods 5 and 6 have zero population sizes.

In milestone period 1, female officers generally have higher promotion rates as compared to male officers in every year group except YG 1986 and YG 1989 (albeit the difference is slight except for the first four year groups). In milestone period 2, average female promotion rates are higher in every year group except for YGs 1976, 1983, and 1984 (the last two year groups used in the computations). YG 1974 has a zero population. The promotion rates for females fluctuate in the last five year groups studied in milestone period 3 and end with a lower rate in YG 1979. The population

size is too small in the earlier year groups to conduct the analysis. The same is true for all year groups in milestone periods 4 - 6.

#### **4. Summary**

In the Aviation community, Black officers experience higher loss rates and corresponding lower promotion rates compared to White officers in milestone periods 1, 2, 3 and 4. Hispanic officers, compared to White officers, have higher loss rates and lower promotion rates in milestone periods 1, 2 and 4, as well as, higher loss rates in milestone period 3. Female officers have higher loss rates and lower promotion rates in period 3, as well as, higher loss rates in period 4 compared to male officers.

### **E. ANALYSIS OF SUBMARINE WARFARE COMMUNITY**

#### **1. Background**

Only five year groups in the submarine community have available inventory levels of Black officers of at least ten (YGs 1976, 1978, 1980, 1990 and 1991). Hispanic officers are represented even less with only three year groups that have an available inventory of at least ten (YGs 1983, 1989, and 1991). Because of the small population sizes for Blacks prior to YG 1976 and for Hispanics prior to YG 1983, analysis of loss and promotion rates was limited to the more recent year groups, which include only the first couple of milestone

periods and the first 14 or ten years of service for Blacks and Hispanics, respectively.

## **2. Black Officers**

### **a. Black Loss Rates**

Black officers have higher average loss rates than those of White officers in the first three years of service. In the next four years of service (YOSs 4 - 7), Blacks have lower loss rates except for YOS 6. Except for YOS 10, Blacks have higher loss rates compared to White officers from YOS 8 through YOS 14.

Comparing average milestone period loss rates with those of White officers shows that Blacks experience higher loss rates in milestone periods 1, 3 and 4. Blacks have a lower loss rate than White officers in milestone period 2. The loss rates in milestone periods 4 - 7 are tenuous because of small or zero population sizes.

In milestone period 1, Black officers have higher loss rates compared to White officers in 11 of 15 year groups included in the computations. The exceptions are YGs 1975, 1979, 1988 and 1989. In milestone period 2, Blacks have higher loss rates in YGs 1975 and 1976, then lower loss rates in the next three year groups (1977 - 1979). YGs 1980 and 1981 indicate higher loss rates for Blacks compared to Whites, while the last three year groups used in the computations reflect lower loss rates for Black officers. Analysis of loss

rates prior to YG 1975 could not be conducted because of small population sizes in both milestone period 2 and 3. In milestone period 3, Blacks have higher loss rates compared to White officers in the last four year groups studied (1976 - 1979).

**b. Black Promotion Rates**

Comparing average Black promotion rates against those of Whites in the various milestone periods shows that Blacks have slightly higher rates in milestone periods 1 and 2. Black officers have a substantially lower average promotion rate in milestone period 3 but then have a higher rate compared to White officers in milestone period 4. However, the population sizes in milestone periods 4 - 7 are too small or zero to continue further analysis.

Higher/lower promotion rates for Black officers as compared to White officers fluctuate among the various year groups in milestone period 1. Slightly higher loss rates are evident in the last two year groups included in the computations (1988, 1989). In milestone period 2, Black officers have higher promotion rates in eight of the 12 year groups studied. (YG 1974 had a zero population size.) The last three year groups in the study indicate higher promotion rates for Black officers as compared to White officers, and these rates show an increasing trend. Beyond milestone period

2, the population sizes of the year groups included in the computations are too small to continue analysis.

### **3. Hispanic Officers**

#### **a. Hispanic Loss Rates**

Of the ten years of service that have a population size conducive for analysis, Hispanic officers have higher average loss rates in eight of the years of service categories as compared to White officers. Hispanics have lower loss rates in YOSs 7 and 10 only.

Hispanics have higher average loss rates in every milestone period in which they are represented (periods 1 - 5), however, the loss rates in milestone periods 3 - 7 are tenuous because of small or zero population sizes.

Within milestone period 1, only YGs 1981 and later could be used in the analysis, and these year groups showed that Hispanics have higher loss rates compared to White officers in each of these year groups except YGs 1983 and 1986. In fact, the loss rates show an increasing trend over the last three year groups used in the computations (1987 - 1989). In milestone period 2, of the last four year groups that supported analysis, three of the year groups (1981, 1983, 1984) show higher loss rates for Hispanic officers compared to White officers. The exception is YG 1982.

#### **b. Hispanic Promotion Rates**

Comparing average promotion rates between Hispanic and White officers in the various milestone periods shows that Hispanic officers have a slightly lower rate in milestone period 1 and a fairly comparable rate in milestone periods 2 and 3. Milestone period 4 indicates a higher average promotion rate for Hispanic officers as compared to White officers; however the population sizes for milestone period 4 - 7 are too small to draw conclusions.

In milestone period 1, Hispanics have comparable or lower promotion rates in every year group commencing with YG 1981 and subsequent year groups, except for YG 1986. The last three year groups used in the computations (1987 - 1989) have consistently lower promotion rates for Hispanics when compared to White officers. In milestone period 2, promotion rates for Hispanic officers alternate lower/higher commencing with YG 1981 through YG 1984. Year groups prior to 1981 do not have population sizes large enough to support further analysis. This is also true of all the year groups used in the computations in milestone periods 3 - 7.

#### **4. Summary**

In the Submarine community, Black officers have higher loss rates in milestone periods 1, 3 and 4 and lower promotion rates in milestone period 3 compared to White officers. Hispanic officers have higher loss rates and lower promotion

rates in milestone period 1, as well as higher loss rates in milestone period 2 compared to White officers. Unfortunately, ethnic representation in the Submarine community is small and analysis is limited to the more recent year groups and years of service categories.



## **CHAPTER VI. CONCLUSIONS AND RECOMMENDATIONS**

### **A. CONCLUSIONS**

The goal of this thesis was to conduct a cohort analysis to compare the career opportunities, in terms of loss and promotion rates, of ethnic (Black and Hispanic) and female officers with those of White ethnic and male officers, respectively. Data was compiled from the OPIS dataset to compute ethnic/gender loss and promotion rates for year groups 1960 - 1991 in the Surface, GenURL, Aviation and Submarine communities.

The study was hindered by a lack of data because of limited representation of Black, Hispanic and/or female officers in the communities and to nonavailability of data prior to FY 1975. Analysis of the older year groups and higher years of service categories often could not be conducted because of small or zero populations of the study groups. However, all rates, even those rates computed from small populations, are included in the appendices for reference.

An objective of this study was to determine whether uptrends or downtrends in loss or promotion rates could be observed from one year group to the next. Overall, it would

appear that rates fluctuated over some periods of time and observable trends occurred only infrequently.

Rates computed for each year of service averaged across year groups addressed the issue of loss and promotion rates from one year to the next. However, there was much variability in these rates and it was difficult to assess whether the group of officers studied were, in fact, experiencing higher or lower rates over time in relation to their comparison group of officers. Milestone periods defined in Chapter IV, section E, on the other hand, aggregated years of service to emphasize significant junctures in a community's career path. These junctures included significant events such as leadership tours, promotions, important sea/shore tours, etc., whose achievement highlighted the successful progression of officers. Thus, averaging rate data over such periods of time provided a more comprehensive analysis than point-to-point analysis of loss and promotion rates by year of service for all groups of officers included in the study.

Regarding milestone period loss and promotion rates in each of the communities, there is generally a direct correspondence between higher loss rates and lower promotion rates in the case of Black officers as compared to White officers. Primarily Black officers experienced higher loss rates in milestone periods 1, 3 and 4 in each of the four communities studied, with the exception of the GenURL community where Black officers experienced lower loss rates in

milestone period 1. This is generally accompanied by lower promotion rates in the same milestone periods, although Black officers in the Submarine community have higher promotion rates in milestone periods 1 and 4.

The correspondence between higher milestone loss rates and lower milestone promotion rates as compared to White officers applies to Hispanic officers, as well, in the Surface and Aviation communities. Generally, Hispanic officers experience higher loss rates and corresponding lower promotion rates compared to White officers in milestone periods 1, 3 and 5 in the Surface community and milestone periods 1, 2 and 4 in the Aviation community (although the differences in loss rates are slight in periods 2 and 4). In addition, Hispanics have lower promotion rates in milestone period 4 in the Surface community. In the Submarine community Hispanics have higher loss rates and corresponding lower promotion rates in milestone period 1 although they also have higher loss rates in subsequent milestone periods.

This correspondence between higher loss rates and lower promotion rates is not seen in the GenURL community; instead, Hispanic officers have slightly higher loss rates in milestone periods 1 and 3 and lower promotion rates in milestone periods 2 and 4 as compared to White officers.

It appears that female officers in the surface and aviation communities have higher loss rates and lower promotion rates in just one or two of the milestone periods as

compared to their male counterparts. However, the following points should be addressed when interpreting the results. First, women have not been around long enough to be present in the senior paygrades in sufficient numbers to warrant analysis beyond milestone period 3. Also, the first two milestone periods are comprised of year of service categories where lateral transfers into the community have an impact. Inventory levels actually increased from one year of service to the next in the first five years of service for several year groups after the communities were first opened to women. The effect of transfers into the communities must have influenced loss rates downward and promotion rates upward.

In the GenURL community, male officers have higher loss rates and lower promotion rates in almost every aspect studied--milestone periods, average years of service and year groups--as compared to their female counterparts. Prior to FY 1992, male GenURLs were primarily lateral transfers and attrites from other communities. Until December 1989, the policy was to automatically redesignate many attrites from other URL communities (for whatever reason) to 1100s. Since then, attrites have had to undergo a selection process to be accepted into the 1100 community. (General URL Community Bulletin, December 1992) Therefore, the automatic redesignation of male attrites, without benefit of selection to identify possible non-promotable candidates, may be a factor in causing these differences in rates. Other factors,

such as bias in promotion or an individual's decision to leave (self-selection), may also have an impact on the differences in rates.

## **B. RECOMMENDATIONS**

The CNO Study Group on Equal Opportunity in the Navy investigated the status of equal opportunity for minorities in the Navy and published a thorough review of officer/enlisted accessions, attrition, and other personnel management policies and practices. This thesis focused on two aspects included in the CNO study: losses and promotional data for Black and Hispanic officers, as well as for female officers. This thesis examined loss and promotion rates in more detail and over a larger period of time than the CNO study and analyzed rates by year groups versus aggregates over fiscal years.

The results of both studies are comparable. In addition to the multitude of CNO study recommendations, the following recommendations are provided for further research.

- Investigate reasons why Black, Hispanic, and female officers leave the communities with emphasis on the problematic years of service and milestone periods that have higher loss rates compared to White and male officers identified in this study. Reasons for leaving may differ between milestone periods, and as such retention and mentor programs could be revised accordingly to increase the retention of these groups of officers.
- Investigate the reasons for differences in promotion rates identified in this study, again with emphasis on the problematic years of service and milestone periods.
- Study the reasons for the discrepancies between female and male loss/promotion rates in the GenURL community.

- Because data limitations restricted much of the analysis effort in this thesis, another study could be conducted in five or ten years, in which time more data would become available.

# APPENDIX A - OPIS FILE VARIABLES AND CODES

**Table VII.** OPIS FILE VARIABLES AND CODES

File Variable	OPIS Code	Definition
TARIND	0	Active duty officers less TAR
RECTYPE	0 8	Inventory data Promotion data
GENDER	1 2	Male Female
ETHNIC	1 2 4	White Black Hispanic
PAYGRADE	5 6 7/8 9/10 11/12 13 14	ENS LTJG LT LCDR CDR CAPT flag
YOS	0 - 31	Years of Service
DESIG	1 2,3,8 4,5,9 13,38,55,56,57	110X 111X, 116X 112X, 117X 130X, 131X, 132X 137X, 139X

## APPENDIX B - INVENTORIES



Table VIII. INVENTORY OF WHITE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table IX. INVENTORY OF BLACK SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOM	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																34	63	102	66	61	67	65	69	82	67	116	97	81	98	77	84	62	
2															28	49	56	94	69	63	65	69	60	75	75	113	97	92	93	78	87		
3														34	29	49	51	92	69	63	64	66	62	71	69	111	96	88	91	78			
4													25	29	22	41	46	84	66	57	54	54	56	59	64	90	86	78	79				
5												13	29	19	15	35	42	68	54	35	41	32	39	49	55	69	58	60					
6											10	9	22	15	13	29	35	58	46	32	29	26	34	44	47	52	48						
7											9	10	7	12	10	25	30	46	36	27	30	22	28	39	38	44							
8									1		8	10	7	16	10	22	27	37	34	23	25	22	25	36	35								
9											1	7	6	15	10	8	20	24	34	28	20	19	20	20	29								
10									1		5	6	6	13	10	9	21	24	31	25	19	17	18	19									
11									1		4	6	4	13	6	9	16	19	27	24	19	15	18										
12									1		4	6	4	12	5	9	14	16	21	19	18	11											
13									1		4	6	4	10	4	9	14	15	21	19	17												
14									1		4	5	4	10	4	9	14	13	20	18													
15									1		4	5	4	10	4	9	14	13	21														
16									1		4	5	3	10	4	9	13	13															
17											4	6	3	10	5	9	13	13															
18											4	6	3	10	4	9	13																
19											4	6	3	9	4	8																	
20											3	6	2	8																			
21											3	6	2																				
22											1	1	10	5	3	10	4	9	13														
23											1	1	10	5	3	10	4	9	13														
24											2		10	5	3	10	4	9	13														
25											3	3	9	4	8																		
26											3	3	9	4	8																		
27											3	3	9	4	8																		
28											3	3	9	4	8																		
29											3	3	9	4	8																		
30											3	3	9	4	8																		
31											3	3	9	4	8																		

**Table X. INVENTORY OF HISPANIC SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEARS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XI. INVENTORY OF MALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																1174	1211	1260	1058	1204	1303	1175	1318	1083	990	1557	1391	1381	1266	1048	935	932
2															1108	1382	1196	1299	1069	1278	1307	1263	1350	1163	1115	1627	1439	1523	1306	1123	955	
3														1223	1105	1313	1193	1309	1111	1243	1331	1226	1358	1167	1109	1619	1465	1479	1322	1125		
4													1102	947	901	1159	1097	1198	1037	1145	1169	1093	1196	1014	986	1453	1297	1357	1232			
5												742	874	708	717	889	857	989	853	864	803	769	876	764	776	1051	923	959				
6											603	549	641	478	511	646	660	776	668	676	633	628	727	638	602	793	679					
7										520	470	432	489	378	390	500	491	619	534	553	536	515	616	538	484	642						
8										394	434	394	378	311	330	412	422	511	446	451	448	453	550	452	404							
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**Table XII. INVENTORY OF FEMALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEARS 1960 - 1991**

YOS960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															3	2			5	18	15	19	18	14	19	19	15	29	41	39	37
2															0	0		5	20	17	16	19	17	18	18	21	17	30	42	40	
3															0	1	5	14	23	19	20	17	17	18	17	22	18	29	39		
4															0	4	16	19	20	18	20	16	17	17	17	17	23	18	27		
5											1	1			1	7	23	19	21	13	17	14	15	11	13	19	15				
6											1	1			2	8	21	16	18	11	16	12	11	7	11	15					
7												1	1		2	6	21	14	17	7	14	10	7	4	8						
8								1				1	1		5	4	18	8	13	6	10	9	5	3							
9												1	1		5	4	16	5	11	6	9	7	5								
10												1	1		3	2	13	4	8	5	8	7									
11												1	1		5	4	13	6	8	5	8										
12												1	1		4	2	13	6	8	5	8										
13												1	1		2	2	11	6	9	6											
14												1			2	2	11	6	9												
15												1			2	2	11	6													
16												1			2	2	11	6													
17												1			2	2	11	6													
18												1			2	2	11	6													
19												1			2	2	11	6													
20												1			2	2	11	6													
21												1			2	2	11	6													
22												1			2	2	11	6													
23												1			2	2	11	6													
24												1			2	2	11	6													
25												1			2	2	11	6													
26												1			2	2	11	6													
27												1			2	2	11	6													
28												1			2	2	11	6													
29												1			2	2	11	6													
30												1			2	2	11	6													
31												1			2	2	11	6													

**Table XIII. INVENTORY OF WHITE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																332	198	304	305	343	458	309	339	334	228	230	183	169	162	167	174	136
2																391	275	161	314	317	357	471	305	325	300	225	228	195	186	172	164	180
3														608	247	266	165	304	303	390	454	292	328	287	229	224	198	183	164	169		
4														299	288	236	160	282	303	367	440	282	355	298	232	238	219	170	159			
5																215	117	198	175	223	106	240	240	219	219	219	219	219	219	219	219	219
6																115	112	77	130	115	140	64	196	194	271	318	217	219	219	219	219	219
7																63	80	63	61	114	98	125	58	168	162	227	266	188	188	155	123	112
8																43	49	66	44	53	107	98	117	50	146	153	200	228	180	174	131	119
9																36	33	45	62	47	51	110	91	116	49	137	141	180	215	168	154	122
10																25	20	27	23	47	55	41	46	92	84	87	36	109	121	143	195	147
11																17	23	13	26	43	59	38	45	88	78	81	34	88	88	96		
12																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
13																19	15	12	21	27	32	53	35	43	82	75	77	32	88	83		
14																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		
15																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
16																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		
17																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
18																19	15	12	21	27	32	53	35	43	82	75	77	32	88	83		
19																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		
20																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
21																19	15	12	21	27	32	53	35	43	82	75	77	32	88	83		
22																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		
23																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
24																19	15	12	21	27	32	53	35	43	82	75	77	32	88	83		
25																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		
26																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
27																19	15	12	21	27	32	53	35	43	82	75	77	32	88	83		
28																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		
29																16	25	13	26	24	33	54	35	43	82	75	77	32	88	83		
30																19	15	12	21	27	32	53	35	43	82	75	77	32	88	83		
31																17	23	13	26	24	33	54	35	43	82	75	77	32	88	83		

**Table XIV. INVENTORY OF BLACK GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XV. INVENTORY OF HISPANIC GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																3	2	2	2	2	4	7	8	6	3	3	12	10	2		10	3	9
2																4	2	5	2	4	5	7	9	7	5	5	15	10	4		10	3	
3																4	2	4	4	3	4	6	9	7	5	14	10	4					
4																4	2	3	1	2	4	5	8	7	6	13	11	4					
5																1	3	1	2	1	4	3	7	7	6	12	8						
6																1	2	2	1	1	3	3	7	5	3	3	12	8					
7																1	1	2	1	1	3	3	6	4	2	2							
8																1	1	2	1	1	2	3	5	2	2								
9																1	1	2	1	1	2	2	4	1									
10																1	1	2	1	1	2	2	4										
11																1	1	2	1	1	2	2	1										
12																1	1	2	1	1	2	2	1										
13																1	1	1	1	1	1	1											
14																1	1	1	1	1	1	1											
15																1	1	1	1	1	1	1											
16																1	1	1	1	1	1	1											
17																1	1	1	1	1	1	1											
18																1	1	1	1	1	1	1											
19																1	1	1	1	1	1	1											
20																1	1	1	1	1	1	1											
21																1	1	1	1	1	1	1											
22																1	1	1	1	1	1	1											
23																1	1	1	1	1	1	1											
24																1	1	1	1	1	1	1											
25																1	1	1	1	1	1	1											
26																1	1	1	1	1	1	1											
27																1	1	1	1	1	1	1											
28																1	1	1	1	1	1	1											
29																1	1	1	1	1	1	1											
30																1	1	1	1	1	1	1											
31																1	1	1	1	1	1	1											



**Table XVI. INVENTORY OF MALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																142	91	59	45	51	88	36	50	84	54	57	44	65	44	62	47	43
2																221	81	92	74	89	101	38	45	63	59	63	57	69	56	52	47	
3																83	92	93	82	133	98	42	59	63	70	71	63	75	51	58		
4														404	116	100	93	100	103	122	102	51	105	87	89	101	94	69	47			
5													234	75	65	87	54	90	84	106	100	53	77	77	78	68	68	49				
6												152	7	15	19	24	22	56	64	72	60	37	30	24	14	20	28					
7											40	22	17	10	13	20	16	42	43	45	40	27	19	17	12	17						
8										19	14	9	7	10	11	18	15	32	39	36	30	25	15	9	11							
9										21	12	4	5	9	10	11	18	15	32	39	36	30	25	15	9	11						
10										12	12	4	5	9	10	11	18	15	32	39	36	30	25	15	9	11						
11										3	7	6	3	7	8	7	3	5	5	8	20	19	27	22								
12										9	1	4	3	8	7	3	3	5	5	8	20	19	27	22								
13										7	4	1	4	8	7	3	3	5	5	8	20	19	27	22								
14										4	3	5	5	10	2	6	6	6	6	6	4	4	4	4	4	4	4	4	4	4	4	4
15										7	3	3	3	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4	4
16										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
17										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
18										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
19										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
20										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
21										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
22										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
23										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
24										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
25										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
26										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
27										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
28										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
29										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
30										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4
31										4	4	1	4	4	11	6	2	2	6	4	4	4	4	4	4	4	4	4	4	4	4	4

**Table xvii. INVENTORY OF FEMALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																206	119	276	283	311	402	323	333	295	216	230	179	120	134	143	166	144
2															191	204	92	265	273	292	405	317	330	283	210	226	181	143	137	151	169	
3														257	181	195	90	252	250	287	309	302	319	271	205	215	177	135	134	149		
4													91	189	153	180	83	223	231	270	373	292	298	260	187	201	173	137	130			
5												71	46	157	125	150	63	185	184	236	329	246	258	210	173	177	145	103				
6												97	55	126	108	130	53	167	158	221	289	219	228	185	156	155	115					
7												78	59	115	95	116	50	153	143	198	255	196	204	170	140	136						
8												44	41	109	93	107	44	139	137	178	224	188	191	149	136							
9												24	43	112	88	106	42	131	132	167	210	174	170	138								
10												54	38	104	88	101	41	128	122	147	202	165	159									
11												52	35	99	88	90	37	121	117	134	191	152										
12												44	41	104	88	101	41	128	122	147	202	165	159									
13												24	43	112	88	106	42	131	132	167	210	174	170	138								
14												54	38	104	88	101	41	128	122	147	202	165	159									
15												52	35	99	88	90	37	121	117	134	191	152										
16												44	41	104	88	101	41	128	122	147	202	165	159									
17												24	43	112	88	106	42	131	132	167	210	174	170	138								
18												54	38	104	88	101	41	128	122	147	202	165	159									
19												52	35	99	88	90	37	121	117	134	191	152										
20												44	41	104	88	101	41	128	122	147	202	165	159									
21												24	43	112	88	106	42	131	132	167	210	174	170	138								
22												54	38	104	88	101	41	128	122	147	202	165	159									
23												52	35	99	88	90	37	121	117	134	191	152										
24												44	41	104	88	101	41	128	122	147	202	165	159									
25												24	43	112	88	106	42	131	132	167	210	174	170	138								
26												54	38	104	88	101	41	128	122	147	202	165	159									
27												52	35	99	88	90	37	121	117	134	191	152										
28												44	41	104	88	101	41	128	122	147	202	165	159									
29												24	43	112	88	106	42	131	132	167	210	174	170	138								
30												54	38	104	88	101	41	128	122	147	202	165	159									
31												52	35	99	88	90	37	121	117	134	191	152										

Table XVIII. INVENTORY OF WHITE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XIX. INVENTORY OF BLACK AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOM	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XX. INVENTORY OF HISPANIC AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOM	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																10	7	17	3	6	12	28	19	41	37	35	63	62	50	77	59	43
2															6	7	4	3	9	2	5	11	27	14	47	33	36	53	53	48	73	53
3														7	7	4	1	9	1	6	10	24	10	42	30	33	48	52	45	57		
4														6	7	4	1	9	1	5	10	23	11	42	27	33	48	52	46			
5														6	7	4	1	9	1	4	10	24	11	40	27	32	47	48				
6														6	7	4	1	9	1	4	10	22	11	38	27	31	43					
7														6	7	4	1	9	1	4	10	18	10	35	22	29						
8														6	7	4	1	9	1	4	8	17	8	29	15							
9														6	7	4	1	9	1	4	7	16	6	23								
10														6	7	4	1	9	1	4	7	15	5									
11														6	7	4	1	9	1	4	7	13										
12														6	7	4	1	9	1	4	7	13										
13														6	7	4	1	9	1	4	7	13										
14														6	7	4	1	9	1	4	7	13										
15														6	7	4	1	9	1	4	7	13										
16														6	7	4	1	9	1	4	7	13										
17														6	7	4	1	9	1	4	7	13										
18														6	7	4	1	9	1	4	7	13										
19														6	7	4	1	9	1	4	7	13										
20														6	7	4	1	9	1	4	7	13										
21														6	7	4	1	9	1	4	7	13										
22														6	7	4	1	9	1	4	7	13										
23														6	7	4	1	9	1	4	7	13										
24														6	7	4	1	9	1	4	7	13										
25														6	7	4	1	9	1	4	7	13										
26														6	7	4	1	9	1	4	7	13										
27														6	7	4	1	9	1	4	7	13										
28														6	7	4	1	9	1	4	7	13										
29														6	7	4	1	9	1	4	7	13										
30														6	7	4	1	9	1	4	7	13										
31														6	7	4	1	9	1	4	7	13										

**Table XXI. INVENTORY OF MALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

[illegible]

**Table XXII. INVENTORY OF FEMALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																3	4	4	6	6	10	15	18	29	17	27	24	39	40	38	52	57	59
2																4	4	9	9	12	16	17	27	16	22	20	40	40	33	39	54	51	
3																5	3	9	10	17	19	19	17	25	18	23	45	38	38	37	46		
4																5	4	9	13	19	19	19	17	24	18	21	45	38	34	40			
5																5	4	10	17	19	19	19	17	24	18	21	46	37	33				
6																5	4	10	17	19	19	19	17	24	18	21	44	34					
7																3	3	6	17	15	16	17	22	17	20	20	44						
8																3	2	5	15	13	14	14	16	15	12								
9																3	2	4	14	9	11	13	10	12									
10																3	2	3	12	8	10	13	7										
11																2	2	3	10	6	9	12											
12																2	1	1	9	4	10												
13																2	1	1	8	4													
14																2	1	1	1	6													
15																2	1	1	1														
16																2	1	1	1														
17																2	1	1	1														
18																2	1	1	1														
19																2	1	1	1														
20																2	1	1	1														
21																2	1	1	1														
22																2	1	1	1														
23																2	1	1	1														
24																2	1	1	1														
25																2	1	1	1														
26																2	1	1	1														
27																2	1	1	1														
28																2	1	1	1														
29																2	1	1	1														
30																2	1	1	1														
31																2	1	1	1														

**Table XXIII. INVENTORY OF WHITE SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOR	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																383	521	454	467	466	456	480	516	663	575	575	639	501	433	472	446	491	477
2															267	383	411	449	434	489	434	489	487	634	542	606	493	477	453	410	443		
3														341	308	376	393	428	432	458	457	440	461	615	529	561	460	459	444	394			
4														340	305	354	383	414	420	442	447	437	440	589	504	544	438	451	435				
5														316	288	306	318	368	250	406	378	348	364	480	411	437	409	429					
6														273	209	205	208	223	276	285	302	272	265	286	388	307	317	253					
7														189	166	181	204	255	241	275	233	229	260	358	288	288							
8														161	160	135	160	134	132	155	175	221	208	228	190	184	194	293	213				
9														138	147	120	140	118	131	130	149	160	197	181	205	158	162	145	238				
10														132	143	115	133	145	117	118	151	163	177	183	195	152	162	136					
11														108	113	110	108	113	122	152	139	145	185	138	152								
12														100	113	110	138	136	120	166	120												
13														94	100	102	100	128	123	110	151												
14														89	92	102	100	128	123	110	103												
15														81	80	91	89	121	102														
16														77	73	81	78	80	91	89	121	102											
17														77	73	81	78	80	91	89	121	102											
18														77	73	81	78	80	91	89	121	102											
19														77	73	81	78	80	91	89	121	102											
20														77	73	81	78	80	91	89	121	102											
21														77	73	81	78	80	91	89	121	102											
22														77	73	81	78	80	91	89	121	102											
23														77	73	81	78	80	91	89	121	102											
24														77	73	81	78	80	91	89	121	102											
25														77	73	81	78	80	91	89	121	102											
26														77	73	81	78	80	91	89	121	102											
27														77	73	81	78	80	91	89	121	102											
28														77	73	81	78	80	91	89	121	102											
29														77	73	81	78	80	91	89	121	102											
30														77	73	81	78	80	91	89	121	102											
31														77	73	81	78	80	91	89	121	102											
32														77	73	81	78	80	91	89	121	102											
33														77	73	81	78	80	91	89	121	102											
34														77	73	81	78	80	91	89	121	102											
35														77	73	81	78	80	91	89	121	102											
36														77	73	81	78	80	91	89	121	102											
37														77	73	81	78	80	91	89	121	102											
38														77	73	81	78	80	91	89	121	102											
39														77	73	81	78	80	91	89	121	102											
40														77	73	81	78	80	91	89	121	102											
41														77	73	81	78	80	91	89	121	102											
42														77	73	81	78	80	91	89	121	102											
43														77	73	81	78	80	91	89	121	102											
44														77	73	81	78	80	91	89	121	102											
45														77	73	81	78	80	91	89	121	102											
46														77	73	81	78	80	91	89	121	102											
47														77	73	81	78	80	91	89	121	102											
48														77	73	81	78	80	91	89	121	102											
49														77	73	81	78	80	91	89	121	102											
50														77	73	81	78	80	91	89	121	102											
51														77	73	81	78	80	91	89	121	102											
52														77	73	81	78	80	91	89	121	102											
53														77	73	81	78	80	91	89	121	102											
54														77	73	81	78	80	91	89	121	102											
55														77	73	81	78	80	91	89	121	102											
56														77	73	81	78	80	91	89	121	102											
57														77	73	81	78	80	91	89	121	102											
58														77	73	81	78	80	91	89	121	102											
59														77	73	81	78	80	91	89	121	102											
60														77	73	81	78	80	91	89	121	102											
61														77	73	81	78	80	91	89	121	102											
62														77	73	81	78	80	91	89	121	102											
63														77	73	81	78	80	91	89	121	102											
64														77	73	81	78	80	91	89	121	102											
65														77	73	81	78	80	91	89	121	102											
66														77	73	81	78	80	91	89	121	102											
67														77	73	81	78	80	91	89	121	102											
68														77	73	81	78	80	91	89	121	102											
69														77	73	81	78																



**Table XXIV. INVENTORY OF BLACK SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXV. INVENTORY OF HISPANIC SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOM	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																1	2	1		2		8	6	11	9	6	4	5	9	12	9	15
2																	2	2	1		2	3	5	10	5	7	8	5	8	9	8	
3																	2	2	1		2	4	5	10	5	6	8	4	7	8		
4																	2	2	1		2	4	5	7	4	5	8	4	7			
5																	1	1			2	3	5	4	4	3	7	3				
6																	1	1			2	1	4	2	2	3	3					
7																	1	1			1	1	4	2	1	1						
8																	1	1			1	1	4	2	1							
9																	1	1			1	1	2	1								
10																	1	1			1	1	2	1								
11																	1	1			1	1	1									
12																	1	1			1	1	1									
13																	1	1			1	1	1									
14																	1	1			1	1	1									
15																	1	1			1	1	1									
16																	1	1			1	1	1									
17																	1	1			1	1	1									
18																	1	1			1	1	1									
19																	1	1			1	1	1									
20																	1	1			1	1	1									
21																	1	1			1	1	1									
22																	1	1			1	1	1									
23																	1	1			1	1	1									
24																	1	1			1	1	1									
25																	1	1			1	1	1									
26																	1	1			1	1	1									
27																	1	1			1	1	1									
28																	1	1			1	1	1									
29																	1	1			1	1	1									
30																	1	1			1	1	1									
31																	1	1			1	1	1									

APPENDIX C - LOSS DATA

**Table XXVI. LOSS DATA OF WHITE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXVII. LOSS DATA OF BLACK SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXVIII. LOSS DATA OF HISPANIC SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOR	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table XXIX. LOSS DATA OF MALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXX. LOSS DATA OF FEMALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table XXXI. LOSS DATA OF WHITE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960  
- 1991

YOR	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91
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**Table XXII. LOSS DATA OF BLACK GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOR	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXXIII. LOSS DATA OF HISPANIC GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXXIV. LOSS DATA OF MALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table xxxv. LOSS DATA OF FEMALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table XXXVI. LOSS DATA OF WHITE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOR960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															291	457	228	56	84	112	179	165	108	80	104	167	105	44	33	103	
2														50	35	61	33	54	30	54	86	111	118	36	71	100	22	37	119		
3													47	23	17	0	9	9	3	3	27	56	8	16	26	7	25	28			
4												170	93	63	59	33	33	9	0	6	25	48	5	27	18	8	22	65			
5											235	253	162	164	146	44	40	25	57	29	33	40	27	19	61	96					
6										226	248	302	284	204	160	124	123	96	158	118	208	143	78	76	156						
7									201	237	239	260	147	152	111	99	161	251	223	186	283	253	213	162							
8								84	144	191	147	75	22	54	69	122	184	135	140	114	193	233	210								
9							135	43	84	60	33	38	26	29	26	56	92	58	49	65	70	87									
10						30	185	110	129	68	41	0	21	60	117	55	73	33	38	16	30										
11							26	67	52	32	24	40	16	24	54	63	111	79	85	115											
12						18	15	21	31	3	19	25	17	15	46	30	45	27	37	26											
13						15	14	18	7	20	21	2	13	15	21	16	33	10	10	33	19										
14						13	9	14	9	5	9	16	17	17	8	30	12														
15						12	0	11	0	11	1	27	3	9	28	22															
16						10	19	19	12	0	11	4	9	7	16	19	24	14													
17						6	15	21	9	5	27	23	18	10	0	14															
18						15	18	16	10	26	30	27	11	22	31																
19						42	52	68	42	61	57	54	39																		
20						85	119	101	128	148	139	86																			
21						50	100																								
22						49	50	49	50	38	47	37	60	40																	
23						19	23	30	11	23	24	24	40																		
24						8	18	6	9	6	30																				
25						16	9	16	40																						
26						17	25																								
27						13	15	17	25																						
28						26	49																								
29						12	5	33																							
30						29	18	28	10	11	12	29																			
31						12	29	12	13	12	5	33																			
32						12	29	12	13	12	5	33																			
33						12	29	12	13	12	5	33																			
34						12	29	12	13	12	5	33																			
35						12	29	12	13	12	5	33																			
36						12	29	12	13	12	5	33																			
37						12	29	12	13	12	5	33																			
38						12	29	12	13	12	5	33																			
39						12	29	12	13	12	5	33																			
40						12	29	12	13	12	5	33																			
41						12	29	12	13	12	5	33																			
42						12	29	12	13	12	5	33																			
43						12	29	12	13	12	5	33																			
44						12	29	12	13	12	5	33																			
45						12	29	12	13	12	5	33																			
46						12	29	12	13	12	5	33																			
47						12	29	12	13	12	5	33																			
48						12	29	12	13	12	5	33																			
49						12	29	12	13	12	5	33																			
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51						12	29	12	13	12	5	33																			
52						12	29	12	13	12	5	33																			
53						12	29	12	13	12	5	33																			
54						12	29	12	13	12	5	33																			
55						12	29	12	13	12	5	33																			
56						12	29	12	13	12	5	33																			
57						12	29	12	13	12	5	33																			
58						12	29	12	13	12	5	33																			
59						12	29	12	13	12	5	33																			
60						12	29	12	13	12	5	33																			

**Table XXXVII. LOSS DATA OF BLACK AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOM	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																20	17	8	6	6	6	4	6	4	0	0	8	5	11	13	2	0	16
2																6	4	0	0	3	6	3	4	3	6	5	9	3	1	1	5		
3														3	1	0	0	0	2	3	0	2	2	2	0	0	2	0	0	6			
4														10	4	2	2	1	1	0	0	0	4	1	1	3	0	3	1	1			
5														6	3	0	0	0	0	0	0	0	4	1	1	3	0	3	0	6			
6														1	0	0	1	1	2	3	0	0	1	2	1	2	0	2	2	2			
7														1	0	0	2	2	7	2	0	1	5	4	0	4	0	0	0	7	2		
8														0	1	0	0	1	3	2	2	4	6	4	5	0	0	0	0	0			
9														0	2	0	1	1	2	0	0	1	2	1	2	0	0	2	0	0			
10														2	0	1	1	3	4	2	2	1	0	2	4	0	0	0	0	0			
11														0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
12														0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
13														0	4	2	2	7	2	2	1	1	6	4	7	2	0	0	0	0			
14														0	0	0	0	1	3	3	2	4	6	4	5	0	0	0	0	0			
15														0	0	0	1	1	2	0	2	1	1	1	1	2	0	0	0	0			
16														0	0	0	1	1	3	2	2	4	6	4	5	0	0	0	0	0			
17														0	0	0	2	4	2	2	2	1	0	2	4	0	0	0	0	0			
18														0	0	0	1	0	0	0	2	2	1	0	2	4	0	0	0	0			
19														0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
20														0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
21														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
22														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
23														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
24														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
25														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
26														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
27														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
28														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
29														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
30														0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Table XXXVIII. LOSS DATA OF HISPANIC AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOR	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XXXIX. LOSS DATA OF MALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XL. LOSS DATA OF FEMALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XLI. LOSS DATA OF WHITE SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XLII. LOSS DATA OF BLACK SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table XLIII. LOSS DATA OF HISPANIC SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																1	0	0	0	2	0	0	5	1	1	4	0	0	0	1	3	1
2																	0	0	0			0	0	0	0	0	1	0	1	1		
3																	0	0	0			0	0	0	0	0	1	0	0	1		
4																	1	1	1			0	0	0	3	1	1	0	0	1		
5																	0	0	0			1	0	3	0	0	2	1	1			
6																	0	0	0			2	1	2	2	0	0	4				
7																	0	0	0			1	0	0	0	1	0					
8																	0	0	0			1	1	2	1	0						
9																	0	0	0			0	0	0	0	0						
10																	0	0	0			0	0	0	0	0						
11																	0	0	0			0	0	0	0	0						
12																	0	0	0			0	0	0	0	0						
13																	0	0	0			0	0	0	0	0						
14																	0	0	0			0	0	0	0	0						
15																	0	0	0			0	0	0	0	0						
16																	0	0	0			0	0	0	0	0						
17																	0	0	0			0	0	0	0	0						
18																	0	0	0			0	0	0	0	0						
19																	0	0	0			0	0	0	0	0						
20																	0	0	0			0	0	0	0	0						
21																	0	0	0			0	0	0	0	0						
22																	0	0	0			0	0	0	0	0						
23																	0	0	0			0	0	0	0	0						
24																	0	0	0			0	0	0	0	0						
25																	0	0	0			0	0	0	0	0						
26																	0	0	0			0	0	0	0	0						
27																	0	0	0			0	0	0	0	0						
28																	0	0	0			0	0	0	0	0						
29																	0	0	0			0	0	0	0	0						
30																	0	0	0			0	0	0	0	0						

APPENDIX D - PROMOTION-ELIGIBLE DATA

Table XLIV. PROMOTION-ELIGIBLE DATA OF WHITE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991

YOS	960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XLV. PROMOTION-ELIGIBLE DATA OF BLACK SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XLVI. PROMOTION-ELIGIBLE DATA OF HISPANIC SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XLVII. PROMOTION-ELIGIBLE DATA OF MALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XLVIII. PROMOTION-ELIGIBLE DATA OF FEMALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOR960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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4												1					1	5	14	23	19	20	17	17	18	17	8	18	29		
5																	16	19	20	18	20	16	16	17	17	17	23	18			
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**Table XLIX. PROMOTION-ELIGIBLE DATA OF WHITE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOR#	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																332	198	304	305	343	450	309	339	334	228	230	183	169	161	167	174	
2															391	261	149	276	317	357	470	305	325	300	225	228	195	185	172	164		
3														608	246	264	164	303	299	386	454	289	323	287	229	224	97	163	162			
4													299	288	230	274	154	273	299	364	440	282	355	297	232	238	219	169				
5												119	25	25	29	33	44	66	39	69	72	4	34	29	42	50	36					
6																2	1	2	1				1	2								
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**Table L. PROMOTION-ELIGIBLE DATA OF BLACK GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LI. PROMOTION-ELIGIBLE DATA OF HISPANIC GENERAL UNRESTRICTED LINE OFFICER BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table LII. PROMOTION-ELIGIBLE DATA OF MALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LIII. PROMOTION-ELIGIBLE DATA OF FEMALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR  
YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																206	119	276	283	311	402	323	333	333	295	216	230	179	120	134	143	166
2															191	199	90	244	273	292	405	317	330	283	210	226	181	142	137	151		
3														257	181	195	90	251	249	286	389	299	316	271	205	215	100	127	133			
4													91	189	153	176	82	221	229	270	373	282	298	260	187	201	173	126				
5												8		5	1	5	23	56	31	50	64	1	7	10	9	23	20					
6																1	1	1	1	1												
7																95	115	50	153	142	198	255	196	204	170	140						
8																93	107	44	139	136	178	224	188	191	149							
9																112	106	42	131	132	167	210	174	169								
10																31	23	13	77	100	131	200	164									
11																4	12	11	1	16	13	44	56									
12																57	115	95	142	198	255	196	204	170	140							
13																52	109	93	107	44	139	136	178	224	188	191	149					
14																29	112	88	106	42	131	132	167	210	174	169						
15																4	12	11	1	16	13	44	56									
16																1	4	6	5	2	16	13	44	56								
17																32	41	92	81	80	35	105	99	108								
18																31	41	89	79	78	34	100	96									
19																40	85	77	78	34	100	96										
20																23	40	85	72	74	30											
21																18	33	37	25													
22																25	54	55														
23																25	57															
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**Table LIV. PROMOTION-ELIGIBLE DATA OF WHITE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LV. PROMOTION-ELIGIBLE DATA OF BLACK AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOR#60	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table LVI. PROMOTION-ELIGIBLE DATA OF HISPANIC AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LVII. PROMOTION-ELIGIBLE DATA OF MALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LVIII. PROMOTION-ELIGIBLE DATA OF FEMALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																3	4	4	6	17	15	18	29	17	27	34	39	40	38	52	57	
2																4	4	8	6	12	16	17	27	16	22	40	40	33	39	54		
3														7		5	3	9	10	17	19	17	25	18	23	45	14	38	37			
4													7			5	4	9	13	19	17	24	18	21	45	38	34					
5													1				2	1	3				2	1	3							
6																																
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8											1					3	2	5	15	13	14	14	16	15								
9											1			5		3	2	4	14	9	11	13	10									
10																1		2	11	8	10	12										
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14														5		2	1	1	8													
15														3		1	1	1														
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**Table LIX. PROMOTION-ELIGIBLE DATA OF WHITE SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																383	521	452	467	466	456	480	516	663	575	639	501	433	472	446	491	
2															267	355	388	416	449	434	489	448	487	634	542	606	493	477	453	410		
3														340	308	375	393	428	432	457	457	438	460	615	529	561	192	458	444			
4													315	340	288	336	363	392	419	441	447	437	440	589	504	544	437	451				
5												226	3	2	4	7	8	27	27	42	40	6	3	15	4	81	85					
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**Table LX. PROMOTION-ELIGIBLE DATA OF BLACK SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table Lxi. PROMOTION-ELIGIBLE DATA OF HISPANIC SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																1	2	1	1	2		8	6	11	9	6	4	5	9	12	9	
2																	1	1	1		2	3	5	10	5	7	8	5	8			
3																	2	2	1		2	4	5	10	5	6	6	4	7			
4													1	2			2	1	2		2	4	5	7	4	5	6	4				
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APPENDIX E - PROMOTION DATA

Table LXII. PROMOTION DATA OF WHITE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																129	114	119														
2															1049	1135	1013	1076	1024	1161	1230	1103	1250	1016	952	1405	513	1303	1153	932		
3															54	66	74	57	1			2	1	4	2	2	681	2				
4															791	638	607	730	701	805	714	735	639	689	795	631	773	728	789			
5												335	3	5	8	10	4	43	60	53	72	9	12	19	13	82	37					
6													1				1					1				1						
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**Table LXIII. PROMOTION DATA OF BLACK SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																3	4	9															
2															29	45	44	84	69	63	62	66	62	69	69	111	51	88	89	76			
3															2	2	3	3															
4													28	18	13	30	36	63	48	32	34	32	37	44	54	54	51	50					
5																1		1	3	1	2		2	2									
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**Table LXIV. PROMOTION DATA OF HISPANIC SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOG	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXV. PROMOTION DATA OF MALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXVI. PROMOTION DATA OF FEMALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXVII. PROMOTION DATA OF WHITE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXVIII. PROMOTION DATA OF BLACK GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YORG	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXIX. PROMOTION DATA OF HISPANIC GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXX. PROMOTION DATA OF MALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																9	10	22			1											
2															82	77	79	69	71	102	84	38	53	63	69	70	23	61	50	58		
3															3	6	4	7														
4													49	35	35	53	25	65	73	80	83	47	45	49	32	34	44	41				
5															1	1	1	2	5	9	5		1	2	2	4	3					
6																		1	1													
7																																
8																																
9								1	1		1		3	2	2	3	2	1														
10										1																						
11											1																					
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**Table LXXI. PROMOTION DATA OF FEMALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																5	2	21														
2															181	191	66	229	241	279	386	299	316	271	204	214	100	126	133	148		
3																4	1															
4													46	152	124	140	39	127	150	185	265	245	251	200	163	154	125	95				
5															4	2	19	50	24	48	58		2	8		4	18	13				
6																																
7																																
8												2	16																			
9								10	15	30	40	33	17	93	56	78	28	51	22	16	2	1	1									
10								5		7	6	2	8	3	23	9	9	55	84	75	135	97										
11									3	1				1	2			1		18	10											
12																																
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Table LXXII. PROMOTION DATA OF WHITE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																244	119	210			1											1
2															1432	1014	988	1106	1111	1204	1121	1588	1343	1247	1058	1596	798	1536	1175	1358		
3															147	167	87	146														1
4													1395	1151	1124	987	956	1085	1030	1135	998	1351	1223	1110	965	1432	1511	1417				
5												304	0	16	55	18	23	63	69	53	68	128	90	88	56	114	112					3
6																																
7																																
8													54	4	3																	
9								374	292	435	415	365	347	487	632	408	434	276	58	40	7	19										
10								117	174	232	227	159	72	83	0	57	161	127	289	384	351	408	329									
11										32	4	11	4	3	1	2																
12								3	1	3	4	1		1																		
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**Table LXXIII. PROMOTION DATA OF BLACK AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																3	1	3														
2															18	14	21	23	20	16	23	36	27	24	34	20	21	33	44	39		
3															6	1	1	1														
4													10	42	12	15	20	20	19	17	20	30	26	18	26	18	24	28				
5												1	1					3		1	2	1	4	2								
6																																
7																																
8														2																		
9								3	1	1	1	2	1	12	9	8	13	5	1	1	1	1										
10								2				2	1			2	1	2	7	8	10	6										
11																																
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13																		1	1													
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15	1				1	1	1	1	1	1			3	3	4	1	4															
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**Table LXXIV. PROMOTION DATA OF HISPANIC AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960  
- 1991**

YOR	860	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																1	3	3														
2															7	3	1	6	1	6	10	24	10	42	30	33	28	52	44	57		
3															1	1	1	1														
4													6	5	5	3	1	7	1	4	10	22	9	30	25	25	40	45				
5														1	1							1	2	9	1	5	5					
6																																
7																																
8																																
9								4		2	1	1	2	3	3	2	1	3														
10																		1		4	4	2										
11																		1	1													
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Table LXXV. PROMOTION DATA OF MALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	860	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																253	121	215				1										
2																1469	1031	1011	1132	1128	1210	1147	1651	1377	1317	1123	1631	846	1618	1243	1456	2
3																155	173	89	148													
4																1420	1201	1150	1005	981	1106	1042	1148	1019	1404	1254	1164	1018	1458	1571	1487	1
5												307	9	16	57	18	21	67	66	55	71	131	93	100	59	117	119					
6																	2															
7																																
8													54	7	3																	
9								385	293	441	417	371	352	499	651	419	448	284	59	42		1										
10							118	176	233	228	161	74	84	8	58	164	130	292	385	361	415	341										
11									32	4	11	4	3	1	2		7	3	1	57	28											
12								3	1	3	4	1																				
13										4																						
14								86	108	147	11	8	9	19	12	9	1	5	13	2												
15								302	244	325	355	272	282	293	315	274	248															
16								5	1	10	4	16	1	3	56	14																
17								1	1	1	5																					
18								1	1	1																						
19								4	1		3																					
20								2	4		8																					
21								2	4																							
22								129	93	97	69																					
23								27	15	42																						
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**Table LXXVI. PROMOTION DATA OF FEMALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																																
2																5	3	1	8	10	17	19	17	25	18	23	45	14	38	37	46	
3																																
4														6		5	2	9	14	19	19	17	24	15	20	43	34	33				
5													1				2	1	3													
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8																																
9											1			5		2	2	1	1	1	6	9	1									
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**Table LXXVII. PROMOTION DATA OF WHITE SUBMARINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
YOB960																																
1																28	23	33														
2																346	371	398	431	456	456	438	460	615	529	561	561	192	458	444	394	
3																17	18	20	22													
4																270	271	296	323	363	336	341	360	465	407	356	324	354				
5												139				1	4	3	1	14	11	23	14	1	2	12		41	54			
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**Table LXXVIII. PROMOTION DATA OF BLACK SUBMARINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOB	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXXIX. PROMOTION DATA OF HISPANIC SUBMARINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOE	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																	1															
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APPENDIX F - LOSS RATES

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Table LXXXI LOSS RATES OF BLACK SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.000	0.111	0.078	0.000	0.000	0.030	0.000	0.000	0.130	0.095	0.000	0.026	0.000	0.000	0.051	0.000	0.000
2															0.000	0.089	0.021	0.000	0.015	0.043	0.000	0.053	0.000	0.053	0.000	0.010	0.043	0.022	0.000	0.000	0.000
3													0.147	0.241	0.163	0.098	0.087	0.043	0.095	0.156	0.182	0.097	0.169	0.072	0.183	0.104	0.114	0.132			
4													0.345	0.318	0.146	0.087	0.190	0.182	0.386	0.241	0.407	0.304	0.169	0.141	0.233	0.326	0.231				
5												0.000	0.345	0.318	0.146	0.087	0.190	0.182	0.386	0.241	0.407	0.304	0.169	0.141	0.233	0.326	0.231				
6												0.308	0.341	0.211	0.133	0.171	0.167	0.148	0.086	0.293	0.188	0.128	0.102	0.145	0.246	0.172					
7											0.308	0.341	0.222	0.227	0.200	0.231	0.138	0.143	0.207	0.156	0.000	0.154	0.176	0.114	0.191	0.154					
8											0.222	0.227	0.227	0.200	0.059	0.167	0.000	0.120	0.148	0.056	0.148	0.167	0.000	0.107	0.077	0.079					
9											0.111	0.000	0.000	0.143	0.063	0.000	0.200	0.091	0.111	0.081	0.176	0.130	0.240	0.021	0.200	0.194					
10											0.125	0.300	0.133	0.000	0.133	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.050							
11											0.286	0.143	0.000	0.333	0.000	0.000	0.000	0.238	0.208	0.129	0.077	0.000	0.118	0.000							
12											0.200	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
13											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
14											0.000	0.000	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
15											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
16											0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
17											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
18											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
19											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
20											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
21											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
22											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
23											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
24											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
25											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
26											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
27											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
28											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
29											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							
30											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000							

Table LXXXII LOSS RATES OF HISPANIC SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
YOS1960																															
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Table LXXXIII LOSS RATES OF MALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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170.032																															
180.036																															
190.086																															
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210.184																															
220.102																															
230.060																															
240.129																															
250.107																															
260.365																															
270.119																															
280.186																															
290.292																															
300.529																															



**Table LXXXIV LOSS RATES OF FEMALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

	YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																1.000	1.000			0.000	0.056	0.000	0.000	0.056	0.000	0.053	0.000	0.000	0.000	0.000	0.000	0.000
2																0.000	0.000			0.000	0.000	0.000	0.105	0.000	0.000	0.056	0.000	0.000	0.000	0.033	0.071	
3																0.000	0.000	0.000		0.000	0.130	0.053	0.000	0.059	0.000	0.056	0.000	0.000	0.000	0.069		
4																0.000	0.000	0.000	0.000	0.000	0.278	0.150	0.125	0.118	0.353	0.235	0.174	0.167				
5																0.000	0.000	0.000	0.087	0.158	0.143	0.154	0.059	0.143	0.267	0.364	0.154	0.211				
6																0.000	0.250	0.000	0.125	0.056	0.364	0.125	0.167	0.364	0.439	0.273						
7																0.000	0.000	0.333	0.143	0.429	0.235	0.143	0.286	0.100	0.286	0.250						
8																0.000	0.000	0.000	0.111	0.375	0.154	0.000	0.100	0.222	0.000							
9																0.000	0.000	0.000	0.188	0.200	0.273	0.167	0.111	0.000								
10																0.000	0.000	0.400	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11																0.000	0.000	0.280	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12																0.000	0.000	0.000	0.154	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30																0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**Table LXXXV LOSS RATES OF WHITE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table LXXXVI LOSS RATES OF BLACK GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

[illegible]

Table LXXXVII LOSS RATES OF HISPANIC GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

[illegible]

Table LXXXVIII LOSS RATES OF MALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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Table LXXIX LOSS RATES OF FEMALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1														0.052	0.010	0.227	0.040	0.035	0.061	0.000	0.019	0.007	0.041	0.028	0.017	0.000	0.000	0.000	0.000	0.000	0.000	
2													0.265	0.052	0.044	0.022	0.049	0.084	0.017	0.040	0.047	0.033	0.042	0.024	0.049	0.022	0.056	0.022	0.013			
3													0.495	0.155	0.077	0.078	0.115	0.076	0.059	0.041	0.066	0.066	0.041	0.068	0.065	0.023	0.059	0.030				
4													0.000	0.169	0.103	0.167	0.241	0.170	0.203	0.126	0.118	0.128	0.134	0.132	0.075	0.119	0.162	0.189				
5													0.000	0.000	0.136	0.133	0.159	0.097	0.141	0.064	0.122	0.110	0.116	0.119	0.098	0.124	0.207					
6													0.141	0.097	0.120	0.108	0.057	0.084	0.095	0.104	0.116	0.105	0.105	0.081	0.103	0.123						
7													0.392	0.123	0.220	0.088	0.052	0.021	0.078	0.120	0.092	0.042	0.101	0.122	0.041	0.064	0.124	0.029				
8													0.000	0.033	0.065	0.135	0.000	0.054	0.009	0.045	0.059	0.036	0.062	0.063	0.078	0.130	0.074					
9													0.042	0.000	0.043	0.069	0.116	0.022	0.071	0.000	0.047	0.024	0.023	0.076	0.120	0.038	0.052	0.065				
10													0.200	0.000	0.043	0.000	0.037	0.079	0.045	0.048	0.000	0.109	0.098	0.055	0.041	0.088	0.054	0.079				
11													0.000	0.000	0.350	0.083	0.091	0.100	0.000	0.029	0.000	0.051	0.045	0.067	0.000	0.027	0.251					
12													0.167	0.154	0.190	0.083	0.227	0.053	0.000	0.020	0.031	0.024	0.055	0.061	0.049	0.000	0.000	0.000	0.000	0.000	0.000	
13													0.000	0.000	0.235	0.182	0.082	0.000	0.020	0.000	0.000	0.012	0.039	0.038	0.029	0.027	0.251					
14													0.167	0.100	0.000	0.111	0.000	0.000	0.000	0.021	0.065	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
15													0.200	0.000	0.000	0.385	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
16													0.000	0.000	0.111	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
17													0.156	0.000	0.000	0.125	0.063	0.224	0.111	0.059	0.063	0.031	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18													0.000	0.000	0.143	0.133	0.000	0.143	0.000	0.375	0.125	0.075	0.040	0.517	0.419	0.360	0.220					
19													0.455	0.250	0.67	0.231	0.143	0.400	0.214	0.000	0.157	0.000	0.364	0.333	0.429	0.160						
20													0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
21													0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
22													0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
23													0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
24													0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
25													0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
26													0.500	0.313	0.250	0.800																
27													0.000	0.000	0.000	0.333	0.333															
28													0.333	0.000	0.000																	
29													0.000	1.000																		
30													1.000																			

**Table XC LOSS RATES OF WHITE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YCS1963	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500
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Table XCI LOSS RATES OF BLACK AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.500	0.436	0.239	0.307	0.216	0.133	0.125	0.114	0.000	0.170	0.147	0.239	0.277	0.042	0.000	0.200	
2														0.250	0.000	0.000	0.130	0.273	0.115	0.095	0.097	0.200	0.128	0.310	0.086	0.029	0.022	0.166			
3												0.064			0.000	0.000	0.000	0.074	0.150	0.000	0.087	0.053	0.036	0.000	0.000	0.000	0.000	0.133			
4												0.000	0.023	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.111	0.037	0.042	0.088	0.000	0.034	0.030			
5											0.000	0.091	0.163	0.111	0.125	0.045	0.042	0.100	0.158	0.000	0.031	0.077	0.043	0.065	0.000	0.069					
6												0.400	0.276	0.250	0.143	0.095	0.000	0.111	0.000	0.045	0.161	0.167	0.000	0.132	0.000						
7											0.333	0.000	0.333	0.231	0.250	0.000	0.105	0.304	0.125	0.059	0.048	0.231	0.200	0.318	0.080						
8											0.450	0.000	0.000	0.000	0.050	0.000	0.000	0.188	0.214	0.125	0.200	0.300	0.250	0.333							
9											0.000	0.000	0.000	0.000	0.000	0.059	0.188	0.214	0.125	0.200	0.300	0.250	0.333								
10											0.000	0.000	0.000	0.000	0.000	0.083	0.063	0.154	0.000	0.143	0.063	0.071	0.063								
11											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
12											0.000	0.000	0.000	0.000	0.000	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
13											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
14											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
15											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
16											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
17											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
18											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
19											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
20											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
21											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
22											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
23											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
24											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
25											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
26											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
27											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
28											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
29											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								
30											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000								



Table XCII LOSS RATES OF HISPANIC AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1-51	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.000	0.571	0.471	0.333	0.167	0.083	0.036	0.263	0.000	0.108	0.000	0.139	0.145	0.040	0.052	0.102	
2														0.000	0.000	0.667	0.000	0.500	0.000	0.091	0.111	0.286	0.106	0.091	0.083	0.094	0.019	0.063	0.219		
3													0.000	0.000	0.000	0.000	0.000	0.000	0.167	0.000	0.042	0.000	0.000	0.100	0.000	0.000	0.000	0.000			
4													0.000	0.143	0.000	0.000	0.111	0.000	0.200	0.000	0.000	0.000	0.048	0.000	0.030	0.021	0.077				
5											0.333	0.000	0.000	0.000	0.250	0.000	0.125	0.000	0.000	0.000	0.083	0.000	0.050	0.000	0.031	0.085					
6										0.400	0.250	0.000	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.162	0.091	0.079	0.185	0.065						
7										0.000	0.000	0.250	0.000	0.571	0.000	0.000	0.000	0.000	0.000	0.200	0.056	0.200	0.171	0.318							
8										0.000	0.333	0.200	0.000	0.000	0.000	0.000	0.429	0.000	0.000	0.125	0.059	0.250	0.207								
9										0.250	0.500	0.333	0.000	0.000	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.167									
10										0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.133										
11										0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000										
12										0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
13										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
14										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
15										1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
16										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
17										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
18										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
19										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
20										0.250	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.000	0.000										
21										0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
22										0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
23										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
24										1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
25										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
26										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
27										1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
28										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
29										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										
30										0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000										

**Table XCIII LOSS RATES OF MALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

[illegible]

**Table XCIV LOSS RATES OF FEMALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.056	0.069	0.059	0.185	0.000	0.000	0.000	0.000	0.105	
2															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.148	
3															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
4															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
5															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
6															0.000	0.000	0.000	0.200	0.000	0.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
7															0.400	0.250	0.250	0.105	0.167	0.158	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
8															0.000	0.333	0.167	0.118	0.133	0.125	0.176	0.273	0.118	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9															0.167	0.000	0.000	0.200	0.067	0.308	0.214	0.071	0.375	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10															0.000	0.000	0.250	0.143	0.111	0.091	0.000	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11															0.333	0.000	0.000	0.000	0.167	0.250	0.100	0.077	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12															0.000	0.000	0.000	0.667	0.100	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30															0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table XCV LOSS RATES OF WHITE SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

[illegible]

**Table XCVI LOSS RATES OF BLACK SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.000	0.100	0.200	0.077	0.000	0.000	0.000	0.000	0.143	0.167	0.333	0.333	0.500	0.286	0.000	0.000	0.300
2															0.000	0.000	0.000	0.083	0.000	0.091	0.250	0.000	0.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3													0.000		0.250	0.111	0.000	0.091	0.000	0.000	0.000	0.000	0.250	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4													0.000		0.000	0.125	0.000	0.100	0.000	0.273	0.333	0.167	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5													0.000		0.000	0.286	0.400	0.111	0.400	0.125	0.000	0.200	0.000	0.500	0.000	0.000	0.000	0.000	0.667	0.000	0.000
6													0.000		0.333	0.200	0.000	0.000	0.000	0.143	0.000	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000
7													0.000		0.500	0.000	0.000	0.000	0.000	0.333	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8													0.000		0.000	0.000	0.000	0.125	0.333	0.000	1.000	0.333	0.333	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9													0.000		0.000	0.000	0.667	0.143	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10													0.000		0.000	0.000	0.000	0.000	0.000	0.167	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
11													0.000		0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
12													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13													0.000		0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
14													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
21													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
25													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
27													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30													0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**Table XCVII LOSS RATES OF HISPANIC SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															1.000	0.000	0.000			0.000	0.625	0.167	0.091	0.444	0.000	0.000	0.000	0.000	0.111	0.250	0.111
2															0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125	0.111
3												0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.143
4												0.000			0.500	0.000	0.000			0.000	0.250	0.000	0.429	0.000	0.400	0.125	0.250				
5											0.000	0.000			0.000	0.000	0.000			0.000	0.667	0.200	0.500	0.500	0.000	0.571					
6											0.000	1.000			0.000	0.000	0.000			0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
7									0.000		0.000	0.000			0.000	0.000	0.000			1.000	1.000	0.000	0.000	0.500	0.000	0.000	0.000				
8								1.000	0.000		0.500	0.000			0.000	0.000	0.000			0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000				
9								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
10								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
11								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
12								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
13								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
14								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
15								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
16								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
17								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
18								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
19								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
20								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
21								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
22								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
23								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
24								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
25								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
26								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
27								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
28								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
29								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				
30								0.000	0.000		0.000	0.000			0.000	0.000	0.000			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000				

APPENDIX G - PROMOTION RATES

Table XCVIII PROMOTION RATES OF WHITE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table XCIX PROMOTION RATES OF BLACK SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1															0.086	0.063	0.086															
2														1.036	0.978	0.846	0.988	1.000	1.000	0.954	0.957	1.033	0.920	0.920	0.982	0.526	0.957	0.957	0.974			
3														0.069	0.042	0.061	0.033															
4												1.120	0.621	0.650	0.769	0.857	0.778	0.727	0.561	0.630	0.593	0.661	0.759	0.844	0.600	0.593	0.641					
5															0.333		0.333	0.500	0.333	0.286		1.000	0.400			0.667	0.429					
6																																
7																																
8												0.063																				
9									1.000	0.286	0.571	0.833	0.500	0.600	0.625	0.500	0.333	0.206	0.036	0.100												
10									0.667	1.000		1.000	0.250	1.000	0.636	0.500	0.542	0.760	0.852	0.529	0.824											
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**Table C PROMOTION RATES OF HISPANIC SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																0.500	0.100															
2														1.000	0.600	2.000	1.000	1.250	1.000	1.050	0.950	1.000	0.955	0.981	0.966	0.500	1.000	1.040	1.015			
3																0.250																
4												0.667	0.667	1.000	0.667	0.667	0.692	0.750	0.500	0.750	0.864	0.750	0.645	0.735	0.648	0.469	0.619					
5																1.000	0.333															
6																																
7																																
8																																
9							0.667	0.333																								
10							1.000	1.000								0.500	1.000	0.429	0.500	0.600	0.750											
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**Table CI PROMOTION RATES OF MALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

	YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table CII PROMOTION RATES OF FEMALE SURFACE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	19901991	
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**Table CIII PROMOTION RATES OF WHITE GENERAL RESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

	YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
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**Table CIV PROMOTION RATES OF BLACK GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table CV PROMOTION RATES OF HISPANIC GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
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**Table CVI PROMOTION RATES OF MALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS  
1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																0.063	0.110	0.373			0.011											
2															0.371	0.951	1.113	0.986	0.959	1.146	0.840	1.000	1.178	1.000	1.169	1.111	0.404	0.897	0.893	1.115		
3															0.037	0.070	0.044	0.075	0.333	0.333		2.000	0.667									
4													0.209	0.302	0.372	0.453	0.284	0.699	0.730	0.672	0.814	0.922	0.429	0.570	0.360	0.337	1.450	0.786	2.000			
5															0.034	0.031	0.042	0.091	0.556	0.346	0.313		0.031	0.074	0.043	0.118	0.130					
6																		1.000	1.000													
7															1.000																	
8																																
9								0.083	0.083		0.200		0.333	0.222	0.182	0.167	0.111	0.034														
10										0.167	0.333					0.176																
11												0.429																				
12																				0.056												
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Table CVII PROMOTION RATES OF FEMALE GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																	0.024	0.017	0.076													
2															0.948	0.960	0.978	0.939	0.883	0.955	0.953	0.943	0.958	0.958	0.971	0.947	0.552	0.687	0.971	0.980		
3																0.021	0.011															
4												0.505	0.804	0.810	0.795	0.476	0.575	0.655	0.685	0.710	0.869	0.842	0.769	0.872	0.766	0.723	0.754					
5													0.800				0.400	0.826	0.693	0.727	0.960	0.906	0.286	0.800	0.444	0.783	0.650					
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Table CVIII PROMOTION RATES OF WHITE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1															0.154	0.073	0.133			0.001	0.001										0.001	
2														0.966	0.966	0.945	0.973	0.951	0.973	0.951	0.944	0.921	0.912	0.961	0.954	0.448	0.976	0.966	0.916			
3														0.103	0.133	0.079	0.111														0.001	
4												0.061	0.092	0.090	0.918	0.937	0.936	0.912	0.943	0.910	0.877	0.913	0.897	0.920	0.909	0.904	0.930					
5											0.564	0.143	0.348	0.671	0.500	0.697	0.940	0.908	0.869	0.932	0.921	0.865	0.898	0.862	0.832	0.800						
6															1.000																	
7									0.001			0.085	0.007	0.004				0.001			0.001	0.002										
8							0.417	0.400	0.439	0.575	0.697	0.686	0.843	0.823	0.585	0.634	0.350	0.017	0.064	0.011	0.025											
9						0.718	0.450	0.589	0.645	0.665	0.615	0.703	0.127	0.518	0.615	0.651	0.608	0.785	0.660	0.735	0.479											
10								0.485	0.125	0.289	0.364	0.115	0.083	0.200		0.133	0.040	0.015	0.399	0.203												
11							0.375		0.250	0.273	0.500	0.091		0.250																		
12								2.000	0.007							0.004	0.011	0.025	0.003													
13							0.003	0.062	0.101	0.247	0.164	0.236	0.243	0.021	0.021	0.030	0.031	0.019	0.030	0.051	0.009											
14							0.629	0.519	0.506	0.683	0.749	0.719	0.724	0.690	0.729	0.636	0.638	0.550	0.603													
15		0.540	0.583	0.327	0.208	0.113	0.042					0.010	0.078	0.027	0.150	0.007	0.018	0.228	0.089													
16		0.378	0.359	0.237	0.305																											
17		0.013				0.017	0.009	0.012																								
18		0.028																														
19	0.005			0.016					0.009																							
20						0.013	0.003			0.009																						
21					0.005																											
22		0.434	0.292	0.373	0.349	0.370	0.547	0.456	0.426	0.324	0.280																					
23		0.449	0.636	0.459	0.438	0.345	0.250																									
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Table CIX PROMOTION RATES OF BLACK AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.075	0.026	0.086														
2														0.750	0.824	1.000	0.956	0.870	0.727	0.885	0.857	0.871	0.800	0.872	0.690	0.650	0.971	0.957	0.813		
3														0.333	0.063	0.045	0.037														
4												0.909	0.955	1.000	1.000	0.952	0.833	1.118	0.944	0.952	0.833	0.963	0.750	0.765	1.000	0.750	0.840				
5											1.000	1.000					1.000		0.500	1.000	0.500		0.800	0.400							
6																															
7																															
8													0.100																		
9												0.600	0.500	1.000	0.333	0.400	0.250	0.706	1.000	0.667	0.813	0.385	0.091	0.071	0.063	0.071					
10											1.000	0.500								0.667	0.500	0.333	0.700	0.727	0.714	0.667					
11																															
12																															
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**Table CX PROMOTION RATES OF HISPANIC AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	19901991		
1														0.100	0.100	0.176	0.176															
2													1.167	1.000	0.333	1.000	0.500	0.500	1.200	0.901	0.869	0.714	0.894	0.909	0.917	0.528	0.981	0.917	0.792			
3													0.143	0.250		0.111																
4												1.000	0.714	0.833	1.000	1.000	0.875	1.000	0.800	1.000	0.957	0.818	0.714	0.926	0.758	0.833	0.865					
5													1.000	1.000							0.500	1.000	0.900	0.500	0.714	0.714						
6																																
7																																
8																																
9							1.000		0.500	0.333	0.500	0.647	1.000	1.000	1.000	0.500	0.750				0.125											
10																1.000	1.000		1.000	0.571	0.615											
11																																
12																																
13																																
14																																
15							0.667	1.000																								
16																																
17						0.500																										
18								1.000																								
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Table CXI PROMOTION RATES OF MALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YCS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	19901991	
1																															
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Table CXII PROMOTION RATES OF FEMALE AVIATION WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	
1																																	
2																1.250	0.750	1.000	1.667	1.417	1.188	1.000	0.926	1.125	1.045	1.125	0.350	1.152	0.949	0.852			
3																																	
4													0.857			1.000	0.500	1.000	1.077	1.000	1.000	1.000	1.000	0.833	0.952	0.956	0.895	0.971					
5													1.000				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000		
6																																	
7																																	
8																																	
9											1.000			1.000			0.667	1.000	0.250	0.071													
10																		0.500	0.818	0.750	0.900	0.917											
11																																	
12																																	
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Table CXIII PROMOTION RATES OF WHITE SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991

YOS1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1															0.073	0.044	0.073														
2															0.975	0.956	0.957	0.960	1.051	0.933	0.978	0.945	0.970	0.976	0.926	0.309	0.960	0.980	0.961		
3															0.055	0.048	0.051	0.051													
4															0.857	0.924	0.941	0.854	0.815	0.824	0.795	0.823	0.752	0.780	0.818	0.789	0.808	0.654	0.741	0.785	
5															0.615	0.500	1.000	0.429	0.125	0.519	0.407	0.546	0.350	0.167	0.667	0.800	1.000	0.506	0.635		
6															0.052	0.007															
7															0.694	0.572	0.599	0.600	0.850	0.759	0.631	0.856	0.725	0.650	0.284	0.094	0.083	0.043	0.056		
8															0.478	0.500	0.774	0.745	0.698	0.643	0.923	0.886	0.619	0.769	0.739	0.747	0.702	0.754	0.739		
9															0.143	0.250															
10															1.000																
11															0.011																
12															0.024																
13															0.024	0.012	0.047	0.021													
14															0.024	0.012	0.047	0.021													
15															0.024	0.012	0.047	0.021													
16															0.024	0.012	0.047	0.021													
17															0.024	0.012	0.047	0.021													
18															0.024	0.012	0.047	0.021													
19															0.024	0.012	0.047	0.021													
20	0.014														0.046	0.019	0.036														
21	0.217	0.586	0.453	0.525	0.607	0.718	0.508	0.633	0.642	0.460	0.308																				
22	0.700	0.889	0.517	0.682	0.400	0.300	0.167	0.467	0.500																						
23																															
24																															
25																															
26																															
27	0.05556																														
28	0.071	0.061	0.265	0.094																											
29	0.045	0.038	0.077																												
30																															

**Table CXIV PROMOTION RATES OF BLACK SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
YOB1960																														
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**Table CXV PROMOTION RATES OF HISPANIC SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE FOR YEAR GROUPS 1960 - 1991**

YOS	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
1																																
2																	0.500															
3																	1.000	1.000														
4																	1.000	1.000														
5																	1.000	1.000														
6																	1.000	1.000														
7																	1.000	1.000														
8																	1.000	1.000														
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26																	1.000	1.000														
27																	1.000	1.000														
28																	1.000	1.000														
29																	1.000	1.000														
30																	1.000	1.000														

APPENDIX H - LOSS RATES BY YEAR OF SERVICE AVERAGED ACROSS  
YEAR GROUPS

**Table CXVI** LOSS RATES OF SURFACE WARFARE OFFICERS BY YEAR OF SERVICE

YOS	LOSS RATES				
	ETHNIC			GENDER	
	WHITE	BLACK	HISPANIC	MALE	FEMALE
1	.000	.033	.016	.001	.031
2	.009	.026	.017	.010	.029
3	.108	.127	.130	.111	.036
4	.245	.236	.238	.247	.141
5	.236	.175	.241	.234	.155
6	.200	.162	.211	.200	.170
7	.159	.101	.117	.156	.220
8	.110	.144	.094	.112	.128
9	.069	.071	.085	.068	.186
10	.093	.118	.083	.094	.040
11	.098	.135	.214	.100	.095
12	.046	.043	.095	.047	.059
13	.047	.050	.053	.046	.080
14	.031	.020	.000	.031	.000
15	.013	.025	.067	.014	.167
16	.016	.029	.000	.015	.000
17	.023	.034	.000	.023	.000
18	.042	.063	.154	.043	.000
19	.076	.095	.200	.076	.000
20	.288	.133	.429	.288	
21	.156	.167	.250	.156	
22	.110	.059	.000	.108	
23	.080	.200	.000	.082	
24	.124	.167	.000	.124	
25	.121	.000	.000	.121	
26	.276	.000	.000	.272	
27	.168	.286	.000	.169	
28	.173	.000	1.00	.173	
29	.298	.000		.294	
30	.663	.000		.644	

**Table CXVII** LOSS RATES OF GENERAL WARFARE OFFICERS BY YEAR OF SERVICE

YOS	LOSS RATES				
	ETHNIC			GENDER	
	WHITE	BLACK	HISPANIC	MALE	FEMALE
1	.0364	.0145	.0000	.0962	.0268
2	.0536	.0138	.0870	.1176	.0403
3	.0911	.0876	.1250	.1971	.0817
4	.2137	.1602	.1757	.2994	.1608
5	.2715	.1250	.1053	.5935	.1191
6	.1630	.0797	.1957	.3451	.1154
7	.1047	.0739	.1600	.2181	.0815
8	.0674	.1018	.2105	.1672	.0589
9	.0679	.0593	.0000	.1299	.0587
10	.0983	.0973	.2000	.3661	.0577
11	.1415	.2222	.2857	.4848	.1140
12	.0629	.0545	.0250	.2319	.0527
13	.0497	.0408	.0000	.0794	.0553
14	.0329	.0909	.0000	.1169	.0325
15	.0327	.0000	.0000	.1299	.0196
16	.0280	.1538	.0000	.2262	.0185
17	.0262	.0000	.0000	.0429	.0288
18	.0487	.0000	.0000	.0878	.0327
19	.1058	.0000	.0500	.1653	.0996
20	.3534	.1667	.0000	.2679	.3797
21	.2444	.2500	1.000	.2814	.2500
22	.1071	.0000	.0000	.2424	.0364
23	.1324	.0000	.0000	.2000	.0833
24	.2037	.0000	1.000	.4211	.1282
25	.0909	1.000		.1250	.1481
26	.3793			.1429	.4545
27	.1333			.0000	.1818
28	.2727			.5000	.1429
29	.6000			1.000	.5000
30	1.000				1.000

**Table CXVIII** LOSS RATES OF AVIATION WARFARE OFFICERS BY YEAR OF SERVICE

YOS	LOSS RATES				
	ETHNIC			GENDER	
	WHITE	BLACK	HISPANIC	MALE	FEMALE
1	.0951	.1900	.1179	.1000	.0566
2	.0458	.1265	.1108	.0504	.0442
3	.0146	.0474	.0152	.0154	.0225
4	.0305	.0379	.0385	.0310	.0110
5	.0694	.0750	.0641	.0697	.0369
6	.1423	.1314	.1050	.1416	.1171
7	.1966	.1758	.1884	.1960	.1773
8	.1625	.1526	.1414	.1619	.1923
9	.0853	.0962	.1061	.0856	.1111
10	.0993	.1278	.1053	.0990	.1228
11	.0986	.1161	.0976	.0995	.1842
12	.0477	.0444	.0909	.0479	.0455
13	.0342	.0500	.0000	.0334	.2353
14	.0277	.0435	.0667	.0281	.0000
15	.0220	.0333	.0000	.0213	.1667
16	.0265	.0816	.0800	.0268	.0000
17	.0314	.0000	.0000	.0315	.0000
18	.0525	.0606	.0526	.0528	.0000
19	.1232	.0870	.1250	.1226	
20	.2957	.5000	.3077	.2979	
21	.1682	.1111	.1250	.1667	
22	.1233	.1250	.1429	.1227	
23	.0848	.0000	.0000	.0845	
24	.1330	.1667	.3333	.1336	
25	.1413	.0000	.3333	.1432	
26	.2930	.3333	.5000	.2943	
27	.2143	.5000	1.000	.2163	
28	.2696	.0000		.2692	
29	.3407	.0000		.3358	
30	.5393	.0000		.4493	

**Table CXIX** LOSS RATES OF SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE

YOS	LOSS RATES		
	ETHNIC		
	WHITE	BLACK	HISPANIC
1	.0543	.1489	.2235
2	.0379	.0526	.0615
3	.0306	.0563	.1071
4	.1366	.1194	.2222
5	.2690	.2143	.3235
6	.1229	.1364	.2000
7	.1784	.1053	.1429
8	.1267	.1765	.4167
9	.0503	.1538	.2857
10	.0928	.0909	.0000
11	.1175	.4000	.0000
12	.0845	.1250	.1667
13	.0783	.2857	.0000
14	.0615	.2500	.0000
15	.0351	.0000	.0000
16	.0170	.0000	.0250
17	.0272	.0000	.0000
18	.0313	.0000	.0000
19	.0575	.0000	.3333
20	.1714	.0000	.0000
21	.0962	.0000	.0000
22	.0616	.0000	.0000
23	.0397	.0000	.0000
24	.0842	.0000	.0000
25	.1077	.0000	.0000
26	.1849		.0000
27	.1657		.0000
28	.1811		.0000
29	.2771		.0000
30	.5854		.0000

APPENDIX I - PROMOTION RATES BY YEAR OF SERVICE AVERAGED  
ACROSS YEAR GROUPS

**Table CXX** PROMOTION RATES OF SURFACE WARFARE OFFICERS BY YEAR OF SERVICE

YOS	PROMOTION RATES				
	ETHNIC			GENDER	
	WHITE	BLACK	HISPANIC	MALE	FEMALE
1	.021	.013	.006	.020	.000
2	.954	.928	.936	.950	.996
3	.014	.010	.075	.014	.015
4	.696	.694	.663	.692	.847
5	.543	.417	.379	.531	.818
6	.333	.000		.375	
7	.000	.000	.000	.000	.000
8	.007	.003	.000	.007	.058
9	.366	.247	.313	.361	.200
10	.656	.678	.524	.653	.970
11	.157	.150	.000	.177	.000
12	.000	.000	.000	.000	.000
13	.003	.017	.000	.003	.000
14	.071	.071	.056	.071	.000
15	.633	.534	.571	.631	.667
16	.315	.207	.000	.307	.000
17	.016	.059	.000	.017	.000
18	.000	.000	.000	.000	.000
19	.001	.000	.000	.002	
20	.008	.040	.000	.009	.000
21	.343	.450	.667	.344	.000
22	.423	.375	1.00	.421	
23	.006	.000		.006	
24	.000	.000		.000	
25	.000	.000		.000	
26	.000			.000	
27	.046	.000	.000	.047	
28	.055	.000		.054	
29	.041	.333		.046	
30	.013	.000		.012	



**Table CXXI** PROMOTION RATES OF GENERAL UNRESTRICTED LINE OFFICERS BY YEAR OF SERVICE

YOS	PROMOTION RATES				
	ETHNIC			GENDER	
	WHITE	BLACK	HISPANIC	MALE	FEMALE
1	.016	.012	.000	.042	.008
2	.907	.997	.859	.869	.927
3	.006	.000	.026	.013	.001
4	.649	.720	.703	.476	.743
5	.381	.465	.125	.074	.799
6	.333	.000		.333	.286
7	.000	.000	.000	.000	.000
8	.011	.000	.000	.000	.011
9	.284	.267	.357	.063	.319
10	.548	.447	.400	.078	.638
11	.158	.045	.000	.022	.198
12	.000	.000	.000	.000	.000
13	.003	.000	.000	.017	.001
14	.081	.068	.000	.080	.077
15	.571	.480	.500	.357	.599
16	.209	.083	.000	.154	.231
17	.000	.000	.000	.000	.000
18	.000	.000	.000	.000	.000
19	.009	.167	.000	.000	.011
20	.027	.000	.000	.000	.034
21	.277	.333		.098	.337
22	.226	.000	.000	.040	.387
23	.000	.000	.000	.000	.000
24	.000	.000	.000	.000	.000
25	.000			.000	.000
26	.045			.000	.056
27	.000			.000	.000
28	.111			.000	.167
29	.000				.000
30	.000				.000

**Table CXXII** PROMOTION RATES OF AVIATION WARFARE OFFICERS BY YEAR OF SERVICE

YOS	PROMOTION RATES				
	ETHNIC			GENDER	
	WHITE	BLACK	HISPANIC	MALE	FEMALE
1	.024	.011	.008	.023	.003
2	.909	.841	.845	.905	.962
3	.027	.021	.010	.027	.000
4	.908	.891	.841	.907	.952
5	.722	.655	.735	.720	.938
6	.538	.000	1.00	.563	
7	.000				
8	.005	.011	.000	.005	.000
9	.415	.390	.375	.415	.181
10	.626	.623	.643	.623	.818
11	.213	.000	.000	.206	.000
12	.208	.000		.203	
13	.003	.025	.000	.003	.059
14	.083	.118	.161	.084	.000
15	.633	.538	.545	.631	.800
16	.191	.000	.222	.190	
17	.009	.000	.000	.009	
18	.007	.000	.000	.005	
19	.002	.000	.000	.002	
20	.011	.000	.000	.011	
21	.381	.714	.500	.383	
22	.321	.333	.250	.319	
23	.005	.000	.000	.005	
24	.004	.000	.000	.004	
25	.000		.000	.000	
26	.002	.000	.000	.002	
27	.023	.000		.023	
28	.075	.000		.073	
29	.058	.000		.065	
30	.073	.000		.121	

**Table CXXIII** PROMOTION RATES OF SUBMARINE WARFARE OFFICERS BY YEAR OF SERVICE

YOS	PROMOTION RATES		
	ETHNIC		
	WHITE	BLACK	HISPANIC
1	.011	.032	.012
2	.891	.972	.922
3	.011	.028	.019
4	.801	.862	.674
5	.552	.667	.714
6	.500		
7	.500		
8	.004	.000	.000
9	.462	.192	.500
10	.811	.438	1.00
11	.311	.143	
12	.000		
13	.003	.167	.000
14	.066	.333	.000
15	.783	1.00	1.00
16	.387		
17	.000	.000	.000
18	.000	.000	.000
19	.000	.000	.000
20	.012	.000	.000
21	.508	1.00	1.00
22	.528		
23	.000		
24	.000		
25	.000	.000	.000
26	.000		.000
27	.017		.000
28	.073		.000
29	.054		.000
30	.000		.000

**APPENDIX J - LOSS RATES BY MILESTONE PERIOD AVERAGED ACROSS  
YEAR GROUPS**

**Table CXXIV** MILESTONE PERIOD LOSS RATES OF SURFACE WARFARE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	LOSS RATES				
		ETHNIC			GENDER	
		WHITE	BLACK	HISPANIC	MALE	FEMALE
1	1-2	.005	.031	.017	.006	.033
2	3-6	.189	.173	.180	.190	.123
3	7-11	.110	.118	.138	.110	.150
4	12-17	.030	.038	.026	.030	.250
5	18-20	.129	.081	.259	.129	.000
6	21-26	.145	.091	.143	.188	
7	27-30	.256	.000		.252	

**Table CXXV** MILESTONE PERIOD LOSS RATES OF GENERAL UNRESTRICTED LINE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	LOSS RATES				
		ETHNIC			GENDER	
		WHITE	BLACK	HISPANIC	MALE	FEMALE
1	1-2	.0304	.0105	.0432	.0535	.0338
2	3-6	.1650	.1052	.1495	.3088	.1147
3	7-11	.0940	.1168	.1190	.2455	.0724
4	12-16	.0358	.0677	.0000	.1258	.0336
5	17-20	.1300	.0435	.2000	.1429	.1319
6	21-25	.1715	.2000	.5000	.2857	.1273
7	26-30	.3684		.0000	.3333	.0375

**Table CXXVI** MILESTONE PERIOD LOSS RATES OF AVIATION WARFARE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	LOSS RATES				
		ETHNIC			GENDER	
		WHITE	BLACK	HISPANIC	MALE	FEMALE
1	1-2	.0728	.1580	.1164	.0780	.0460
2	3-7	.0768	.0865	.0786	.0770	.0680
3	8-12	.0960	.1027	.1241	.0960	.1430
4	13-18	.0299	.0500	.0360	.0300	.0950
5	19-25	.1574	.1429	.1778	.1580	
6	26-30	.2496	.0000	1.000	.2460	

**Table CXXVII** MILESTONE PERIOD LOSS RATES OF SUBMARINE WARFARE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	LOSS RATES		
		ETHNIC		
		WHITE	BLACK	HISPANIC
1	1-2	.0455	.0938	.1560
2	3-7	.1397	.1203	.2115
3	8-12	.0906	.2195	.1250
4	13-16	.0528	.1667	.0625
5	17-20	.0683	.0000	.0909
6	21-24	.0749	.0000	.0000
7	25-30	.1957		.0000

**APPENDIX K - PROMOTION RATES BY MILESTONE PERIOD AVERAGED  
ACROSS YEAR GROUPS**

**Table CXXVIII** MILESTONE PERIOD PROMOTION RATES OF SURFACE  
WARFARE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	PROMOTION RATES				
		ETHNIC			GENDER	
		WHITE	BLACK	HISPANIC	MALE	FEMALE
1	1-2	.496	.467	.482	.492	.523
2	3-6	.339	.333	.341	.338	.469
3	7-11	.199	.175	.137	.197	.193
4	12-17	.168	.151	.111	.166	.105
5	18-20	.003	.013	.000	.004	.000
6	21-26	.268		.500	.269	
7	27-30	.034		.000	.036	



**Table CXXIX** MILESTONE PERIOD PROMOTION RATES OF GENERAL UNRESTRICTED LINE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	PROMOTION RATES				
		ETHNIC			GENDER	
		WHITE	BLACK	HISPANIC	MALE	FEMALE
1	1-2	.468	.530	.488	.516	.462
2	3-6	.334	.364	.313	.241	.380
3	7-11	.179	.150	.194	.028	.206
4	12-16	.159	.123	.111	.129	.160
5	17-20	.009	.056	.000	.000	.011
6	21-25	.193	.000	.000	.053	.271
7	26-30	.063			.000	.077

**Table CXXX** MILESTONE PERIOD PROMOTION RATES OF AVIATION WARFARE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	PROMOTION RATES				
		ETHNIC			GENDER	
		WHITE	BLACK	HISPANIC	MALE	FEMALE
1	1-2	.437	.383	.399	.433	.482
2	3-7	.473	.458	.447	.473	.498
3	8-12	.305	.291	.320	.304	.264
4	13-18	.195	.137	.152	.194	.273
5	19-25	.133	.250	.100	.133	
6	26-30	.038	.000	.000	.04	

**Table CXXXI** MILESTONE PERIOD PROMOTION RATES OF SUBMARINE WARFARE OFFICERS AVERAGED ACROSS YEAR GROUPS

MILESTONE PERIOD	YEARS OF SERVICE	PROMOTION RATES		
		ETHNIC		
		WHITE	BLACK	HISPANIC
1	1-2	.456	.471	.429
2	3-7	.409	.439	.393
3	8-12	.348	.148	.364
4	13-16	.256	.286	.333
5	17-20	.003	.000	.000
6	21-24	.451	1.00	1.00
7	25-30	.020		.000

APPENDIX L - MILESTONE PERIOD LOSS RATES BY YEAR GROUPS

**Table CXXXII** MILESTONE PERIOD LOSS RATES OF SURFACE WARFARE OFFICERS BY ETHNIC GROUP AND YEAR GROUP

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6			Milestone Period 7		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													135	125	200	153	125	100	250		
1961													143	100		124			260		
1962													118	083		153	000				
1963													166	000	000	141	100	000			
1964										019	042	000	119	067	400	141	125				
1965										022	125		111	000		155	333				
1966										037	030	000	098	000	000						
1967										041		100	143		100						
1968										046	200	000	134		286						
1969							108	152	000	028	000	000	124	091	333						
1970							119	103	400	031	030		128	111							
1971							106	100	333	024	045		135	125							
1972							089	068	167	033	032	000									
1973				251	227	273	078	146	000	026	077	125									
1974				221	241	067	088	043	091	022	019	000									
1975	027	000	286	205	156	100	118	115	222												
1976	004	101	143	185	121	125	099	113	167												
1977	000	051	000	156	152	104	126	143	081												
1978	000	000	000	155	140	200	133	115	286												
1979	014	000	000	173	193	182	125	083	100												
1980	000	023	048	201	186	217	115	179	172												
1981	011	022	024	188	247	195															
1982	000	070	000	178	178	145															
1983	000	070	023	175	143	232															
1984	000	042	010	185	132	170															
1985	001	022	058	198	208	176															
1986	000	005	000																		
1987	015	023	000																		
1988	000	037	000																		
1989	002	000	000																		
1990																					
1991																					

W = WHITE

B = BLACK

H = HISPANIC

**Table CXXXIII** MILESTONE PERIOD LOSS RATES OF SURFACE WARFARE OFFICERS BY GENDER AND YEAR GROUP

Year Group	Milestone Period 1		Milestone Period 2		Milestone Period 3		Milestone Period 4		Milestone Period 5		Milestone Period 6		Milestone Period 7	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1960									135		154		245	
1961									144		124		257	
1962									118		151			
1963									165		138			
1964							018		120		142			
1965							023		111		156			
1966							036		097	000				
1967							041		144					
1968							046		135					
1969					108		028	1 00	123					
1970					119	000	030	667	128					
1971					106		026		135					
1972					089	000	033	000						
1973			252		079	000	026	1 00						
1974			221	000	087	143	022	000						
1975	027	1 00	203	000	118	150								
1976	007	1 00	184	100	099	222								
1977	000		162	031	127	123								
1978	000	000	157	074	132	270								
1979	014	000	176	085	121	158								
1980	000	029	202	197	119	069								
1981	015	000	191	082										
1982	000	053	178	119										
1983	000	029	176	167										
1984	003	000	180	264										
1985	003	054	199	155										
1986	000	000												
1987	015	000												
1988	000	017												
1989	000	036												
1990														
1991														

M = MALE

F = FEMALE

**Table CXXXIV MILESTONE PERIOD LOSS RATES OF GENERAL UNRESTRICTED LINE OFFICERS BY ETHNIC GROUP AND YEAR GROUP**

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6			Milestone Period 7		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													143		000	304		1 00			
1961													188			051		333	368		
1962													024			194					
1963													114			069					
1964										068	000		129	000		275	200				
1965										060			135		1 00	170					
1966										048	000		208	000		158	200				
1967										041	000		101	000							
1968										065			093								
1969							088	1 00		063			160								
1970							078	000		034	000		123	000							
1971							118	143		052	125		136	125							
1972							062	000	500	023	000										
1973				404	391	500	055	048	000	021	000	000									
1974				193	081	200	044	071	000	019	000	000									
1975	109	000	000	175	089	214	075	114	200	031	000										
1976	103	000	000	216	135	429	096	156													
1977	016	000	143	133	085	182	108	091	000												
1978	023	000	250	136	085	000	099	169	250												
1979	000	000	167	121	139	600	121	163													
1980	018	000	111	117	025	067	116	123	182												
1981	028	015	071	100	053	176															
1982	021	016	000	140	071	097															
1983	074	000	000	142	117	115															
1984	007	045	000	136	092	200															
1985	013	012	037	159	113	039															
1986	000	023	000																		
1987	008	000	000																		
1988	024	000																			
1989	009	000	050																		
1990																					
1991																					

W = WHITE

B = BLACK

H = HISPANIC

**Table CXXXV MILESTONE PERIOD LOSS RATES OF GENERAL UNRESTRICTED LINE OFFICERS BY GENDER AND YEAR GROUP**

Year Group	Milestone Period 1		Milestone Period 2		Milestone Period 3		Milestone Period 4		Milestone Period 5		Milestone Period 6		Milestone Period 7	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1960									000	167	333	333		
1961									1 00	152	222	030	333	375
1962									125	077	211	167		
1963									188	133	143	045		
1964							214	034	135	109	667	167		
1965							000	155	159	097	269	074		
1966							063	094	167	209	250	214		
1967							000	064	100	094				
1968							237	044	000	113				
1969					333	043	389	031	286	152				
1970					333	052	121	020	105	130				
1971					206	113	269	032	250	131				
1972					139	063	172	010						
1973			668	195	195	045	053	025						
1974			326	152	271	024	071	026						
1975	228	027	321	121	207	062	000	031						
1976	058	137	295	138	229	061								
1977	000	044	171	120	285	070								
1978	000	059	180	130	267	068								
1979	000	040	203	088	265	098								
1980	016	020	172	097	192	104								
1981	000	033	142	101										
1982	053	021	317	104										
1983	143	042	279	109										
1984	000	026	307	090										
1985	000	033	323	106										
1986	000	011												
1987	000	030												
1988	050	011												
1989	088	007												
1990														
1991														

M = MALE

F = FEMALE

**Table CXXXVI MILESTONE PERIOD LOSS RATES OF AVIATION WARFARE OFFICERS BY ETHNIC GROUP AND YEAR GROUP**

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													161			250		
1961													132	000	000	235	000	1 00
1962													140					
1963										049	000	000	137	500	267			
1964										031	000	000	177	063	000			
1965										037	040	000	166	400	250			
1966										026	143	071	173	000	250			
1967										020	000	000						
1968							101	143	286	029	167	000						
1969							105	000	200	020	000	500						
1970							107	182	222	028	000	250						
1971							105	045	143	027	050	000						
1972							062	150	273	043	000	000						
1973				.131	.138	.133	.036	.085	000	030	.095	063						
1974				.095	.110	.114	.058	.043	000									
1975	.113	400	.429	.088	.054	.118	.093	.036	.100									
1976	.186	279	.600	.057	.047	.000	.106	100	000									
1977	.089	129	.308	.054	.090	.050	.136	167	.190									
1978	.046	173	.400	.071	.099	.000	.122	135	.167									
1979	.045	240	.091	.078	.047	.087	.115	145	.053									
1980	.067	125	.087	.073	.037	.040												
1981	.075	111	.073	.086	.110	.072												
1982	.090	106	.273	.069	.096	.057												
1983	.080	102	.057	.059	.078	.066												
1984	.051	151	.100	.057	.072	.113												
1985	.051	222	.042															
1986	.072	173	.129															
1987	.039	173	.087															
1988	.033	.032	.051															
1989	.051	.094	.133															
1990																		
1991																		

W = WHITE

B = BLACK

H = HISPANIC



**Table CXXXVII** MILESTONE PERIOD LOSS RATES OF AVIATION WARFARE OFFICERS  
BY GENDER AND YEAR GROUP

Year Group	Milestone Period 1		Milestone Period 2		Milestone Period 3		Milestone Period 4		Milestone Period 5		Milestone Period 6	
	M	F	M	F	M	F	M	F	M	F	M	F
1960									.162		.286	
1961									.128		.207	
1962									.140			
1963							.047		.139			
1964							.030		.177			
1965							.036		.168			
1966							.027		.173			
1967							.020					
1968					.102		.029					
1969					.104		.021					
1970					.108	.250	.029					
1971					.105		.027					
1972					.062		.043					
1973			.132	.056	.038	.038	.031	.095				
1974			.095		.057							
1975	.126	.000	.088	.087	.092	.077						
1976	.191	.250	.057	.111	.106	.111						
1977	.095	.000	.054	.119	.136	.250						
1978	.051	.000	.072	.053	.122	.117						
1979	.052	.000	.076	.068	.114	.225						
1980	.071	.000	.072	.054								
1981	.077	.029	.085	.035								
1982	.093	.071	.070	.076								
1983	.081	.030	.060	.034								
1984	.054	.102	.059	.109								
1985	.058	.000										
1986	.078	.025										
1987	.045	.096										
1988	.034	.026										
1989	.057	.075										
1990												
1991												

M = MALE

F = FEMALE

**Table CXXXVIII MILESTONE PERIOD LOSS RATES OF SUBMARINE WARFARE OFFICERS BY ETHNIC GROUP AND YEAR GROUP**

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6			Milestone Period 7		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													082			068			221		
1961													088			072			168		000
1962													095			074					
1963										046			056			084					
1964										034			065			092					
1965										025			042			040					
1966										045	000	000	055	000	000	103	000	000			
1967										101			053			061					
1968							118	250	1.00	043			066								
1969							091	125	000	071	500	000	086	000	333						
1970							100	1.00		044			061								
1971							103		125	070		125	041		000						
1972							079			056											
1973				139	000	111	085	000	200	053	500										
1974				138			050			037											
1975	009	000	1.00	155	200		083	000		052	000										
1976	137	053	000	143	152	143	063	267	000												
1977	029	111	000	119	105	500	110	375													
1978	038	080		130	065		120	172													
1979	036	000	1.00	122	095		079	429													
1980	034	050	000	149	167	222															
1981	043	143	455	149	167	308															
1982	055	077	091	147	125	043															
1983	037	182	048	133	063	320															
1984	041	200	286	155	125	250															
1985	063	200	077																		
1986	041	333	000																		
1987	020	167	100																		
1988	030	000	118																		
1989	061	000	190																		
1990																					
1991																					

W = WHITE

B = BLACK

H = HISPANIC

APPENDIX M - MILESTONE PERIOD PROMOTION RATES BY YEAR GROUPS

**Table CXXXIX** MILESTONE PERIOD PROMOTION RATES OF SURFACE WARFARE OFFICERS BY ETHNIC GROUP AND YEAR GROUP

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6			Milestone Period 7		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													000	000	000	240	1 00	000	044	000	000
1961													000	000	000	325	000	000	028	000	000
1962													001	000	000	237	500	000			
1963													000	000	000	283	1 00	500			
1964										162	235	100	000	000	000	269	333	000			
1965										178	143	000	004	000	000	266	000	000			
1966										220	250	250	002	000	000						
1967										164	000	125	009	000	000						
1968										184	000	154	000	000	000						
1969							.211	148	250	185	100	000	005	000	000						
1970							196	207	000	169	167	000	012	067	000						
1971							230	238	000	155	200	000	004	000	000						
1972							247	250	250	144	146	000									
1973				.305	281	286	253	194	333	154	042	167									
1974				.352	300	500	243	281	286	142	152	100									
1975	547	600	429	.345	367	333	203	218	125												
1976	526	417	800	.365	419	500	212	163	250												
1977	545	497	591	.395	381	345	176	135	133												
1978	526	511	714	.373	362	333	161	157	000												
1979	500	508	500	.338	268	286	156	213	125												
1980	511	470	500	.294	290	324	162	103	097												
1981	503	493	561	.331	267	422															
1982	505	481	513	.339	325	390															
1983	520	439	483	.334	348	267															
1984	532	486	505	.353	403	356															
1985	512	485	463	.304	295	322															
1986	212	263	257																		
1987	506	509	520																		
1988	513	466	536																		
1989	512	490	520																		
1990																					
1991																					

W = WHITE

B = BLACK

H = HISPANIC

**Table CXL** MILESTONE PERIOD PROMOTION RATES OF SURFACE WARFARE OFFICERS BY GENDER AND YEAR GROUP

Year Group	Milestone Period 1		Milestone Period 2		Milestone Period 3		Milestone Period 4		Milestone Period 5		Milestone Period 6		Milestone Period 7	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1960									000		240		048	
1961									003		326		028	
1962									004		240			
1963									000		292			
1964							162		000		267			
1965							169		004		263			
1966							222		002	000				
1967							164		009					
1968							187	000	000					
1969					211		183		007					
1970					197	000	167		014					
1971					230		155	000	004					
1972					247	500	144							
1973			304		252	333	151							
1974			351		244	333	140	250						
1975	548	000	345		203	059								
1976	521	000	366	2 00	208	273								
1977	541		388	846	171	191								
1978	520	2 80	368	588	158	194								
1979	496	920	333	477	158	163								
1980	507	543	293	351	157	208								
1981	498	645	329	425										
1982	504	447	338	424										
1983	513	486	331	400										
1984	525	563	357	314										
1985	508	460	303	382										
1986	217	200												
1987	507	563												
1988	512	492												
1989	513	470												
1990														
1991														

M = MALE

F = FEMALE

**Table CXLI** MILESTONE PERIOD PROMOTION RATES OF GENERAL UNRESTRICTED LINE OFFICERS BY ETHNIC GROUP AND YEAR GROUP

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6			Milestone Period 7		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													000			286					
1961													000			333		000	963		
1962													000			200					
1963													000			267					
1964										216			000	000		154	000				
1965										230	333		000		000	083					
1966										268	333		000	000		182	000				
1967										172	333		039	333							
1968										173	000		000								
1969							217	000		220			009								
1970							203	333		131	250		023	000							
1971							230	200		161	100		000	000							
1972							246	375	000	114	059										
1973				192	244	167	256	296	333	138	160	000									
1974				295	381	333	236	182	333	167	050	250									
1975	447	478	571	342	259	222	212	261	333	153	111										
1976	470	917	500	220	240	250	187	111													
1977	517	611	571	346	338	286	166	169	333												
1978	458	538	250	353	442	500	168	070	000												
1979	503	759	500	366	356	000	130	108													
1980	472	568	444	392	404	444	141	108	111												
1981	466	507	429	431	478	273															
1982	485	492	471	361	458	333															
1983	453	516	538	363	319	313															
1984	503	507	625	335	371	214															
1985	485	506	519	320	333	444															
1986	257	295	400																		
1987	463	636	667																		
1988	486	591																			
1989	502	500	450																		
1990																					
1991																					

W = WHITE

B = BLACK

H = HISPANIC

**Table CXLII** MILESTONE PERIOD PROMOTION RATES OF GENERAL UNRESTRICTED LINE OFFICERS BY GENDER AND YEAR GROUP

Year Group	Milestone Period 1		Milestone Period 2		Milestone Period 3		Milestone Period 4		Milestone Period 5		Milestone Period 6		Milestone Period 7	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1960									000	000	000	667		
1961									000	000	000	462	000	077
1962									000	000	100	429		
1963									000	000	100	250		
1964							400	171	000	000	143	125		
1965							214	245	000	000	000	231		
1966							400	235	000	000	125	100		
1967							240	167	000	061				
1968							125	136	000	000				
1969					024	273	200	213	000	010				
1970					065	225	032	150	000	024				
1971					107	245	040	179		000				
1972					115	272	000	127						
1973			065	346	041	276	111	140						
1974			189	370	047	257	077	162						
1975	386	484	254	387	081	244	080	152						
1976	549	431	148	301	030	245								
1977	705	481	359	335	007	207								
1978	597	433	418	341	000	203								
1979	729	463	324	384	007	152								
1980	452	478	407	391	026	156								
1981	514	467	475	421										
1982	558	477	238	407										
1983	429	469	288	384										
1984	611	479	166	418										
1985	583	469	184	392										
1986	228	278												
1987	466	485												
1988	500	491												
1989	509	503												
1990														
1991														

M = MALE

F = FEMALE

**Table CXLIII** MILESTONE PERIOD PROMOTION RATES OF AVIATION WARFARE OFFICERS BY ETHNIC GROUP AND YEAR GROUP

Year Group	Milestone Period 1			Milestone Period 2			Milestone Period 3			Milestone Period 4			Milestone Period 5			Milestone Period 6		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													131			036		
1961													176	333	333	039	000	000
1962													129					
1963										181	000	111	147		111			
1964										158	111	333	126	333	333			
1965										154	045	100	109	000	000			
1966										218	250	333	129	333	000			
1967										232	267	500						
1968							.277	250		226	333	143						
1969							.294	500	222	242	333	000						
1970							.307	125	167	190	000	000						
1971							.331	333	250	206	000	333						
1972							.378	182	286	167	333	000						
1973				436	457	400	.397	359	500	164	167	077						
1974				.477	.600	.500	.404	.450	.500									
1975	.477	.298	.308	.495	.516	.571	.329	.370	.500									
1976	.415	.367	.100	.495	.477	.500	.332	.389	.400									
1977	.485	.441	.391	.509	.444	.471	.252	.200	.333									
1978	.464	.385	.200	.479	.500	.500	.235	.216	.000									
1979	.470	.320	.545	.481	.500	.364	.218	.205	.333									
1980	.454	.411	.435	.465	.478	.500												
1981	.448	.400	.436	.452	.413	.469												
1982	.436	.409	.303	.472	.481	.478												
1983	.439	.407	.477	.464	.415	.415												
1984	.464	.395	.429	.469	.378	.441												
1985	.462	.317	.465															
1986	.214	.259	.241															
1987	.472	.407	.452															
1988	.475	.468	.449															
1989	.453	.406	.385															
1990																		
1991																		

W = WHITE

B = BLACK

H = HISPANIC



**Table CXLIV** MILESTONE PERIOD PROMOTION RATES OF AVIATION WARFARE OFFICERS BY GENDER AND YEAR GROUP

Year Group	Milestone Period 1		Milestone Period 2		Milestone Period 3		Milestone Period 4		Milestone Period 5		Milestone Period 6	
	M	F	M	F	M	F	M	F	M	F	M	F
1960									130		040	
1961									179		035	
1962									129			
1963							180		145			
1964							157		128			
1965							153		108			
1966							218		127			
1967							233					
1968					275		226					
1969					294		241					
1970					306	.500	189					
1971					331		203					
1972					374		167					
1973			436	.467	394	.455	.163	.273				
1974			.478		.406							
1975	.470	.714	.496	.500	.331	.286						
1976	.412	.750	.495	.444	.333	.500						
1977	.482	.750	.507	.526	.251	.167						
1978	.460	.833	.478	.654	.234	.250						
1979	.465	.586	.481	.528	.218	.200						
1980	.451	.613	.465	.500								
1981	.446	.486	.451	.500								
1982	.433	.446	.471	.490								
1983	.436	.545	.462	.447								
1984	.460	.469	.466	.444								
1985	.457	.608										
1986	.215	.177										
1987	.468	.521										
1988	.474	.481										
1989	.448	.434										
1990												
1991												

M = MALE

F = FEMALE

**Table CXLV** MILESTONE PERIOD PROMOTION RATES OF SUBMARINE WARFARE OFFICERS BY ETHNIC GROUP AND YEAR GROUP

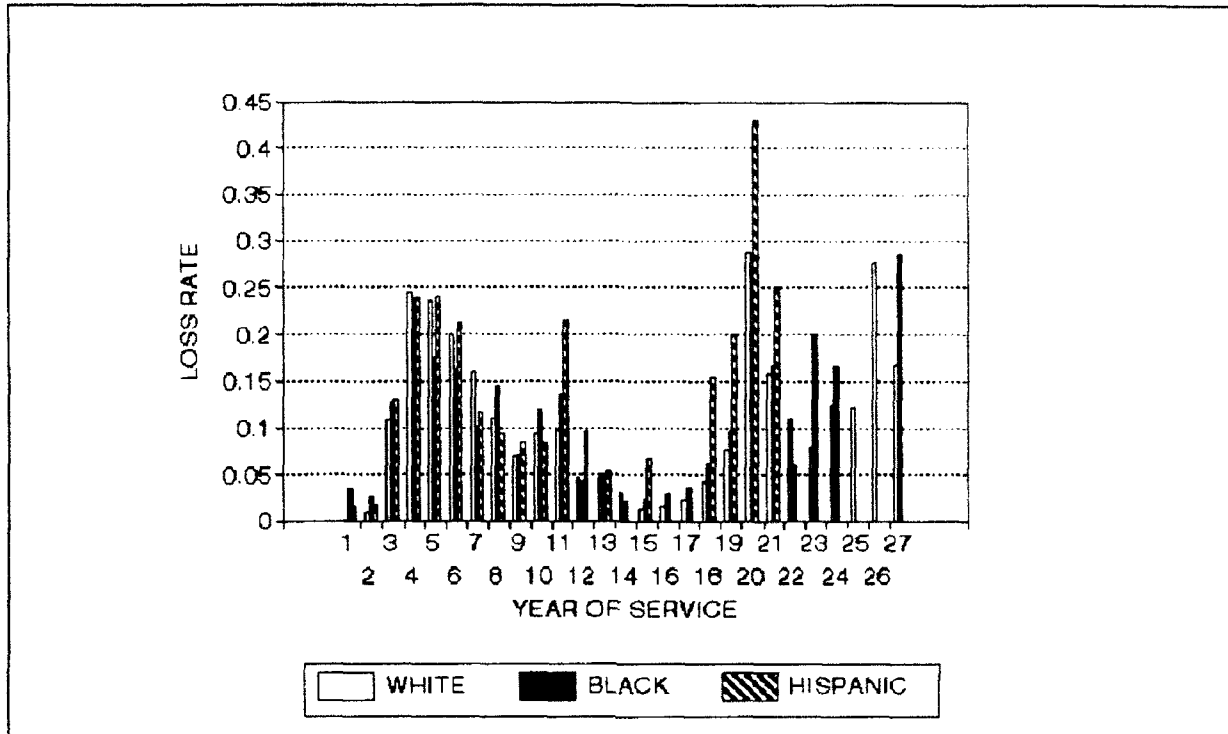
Year Group	Milestone Period 1			2			3			4			5			6			7		
	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H	W	B	H
1960													003			357			025		
1961													000			602			015		000
1962													000			404					
1963										258			000			528					
1964										256			000			488					
1965										276			012			517					
1966										298	500	333	004	000	000	357	1 00	1 00			
1967										258			008			446					
1968							333	500	000	308			000								
1969							349	500	333	283		333	004	000	000						
1970							339	000		247			004								
1971							408		333	249		333	004		000						
1972							419			211											
1973				462	500	500	358	500	500	233	000										
1974				487			430			229	333										
1975	507	500	000	429	429		387	500		257											
1976	433	563	667	415	533	667	425	077	500												
1977	497	444	500	425	625	000	444	000													
1978	471	440		392	429		228	136													
1979	507	833	000	410	364		250	000													
1980	483	500	1 00	371	381	500															
1981	472	429	364	388	333	375															
1982	459	462	455	401	417	500															
1983	474	364	476	391	429	235															
1984	474	400	357	393	500	444															
1985	451	400	462																		
1986	193	333	500																		
1987	503	417	400																		
1988	480	500	412																		
1989	460	500	381																		
1990																					
1991																					

W = WHITE

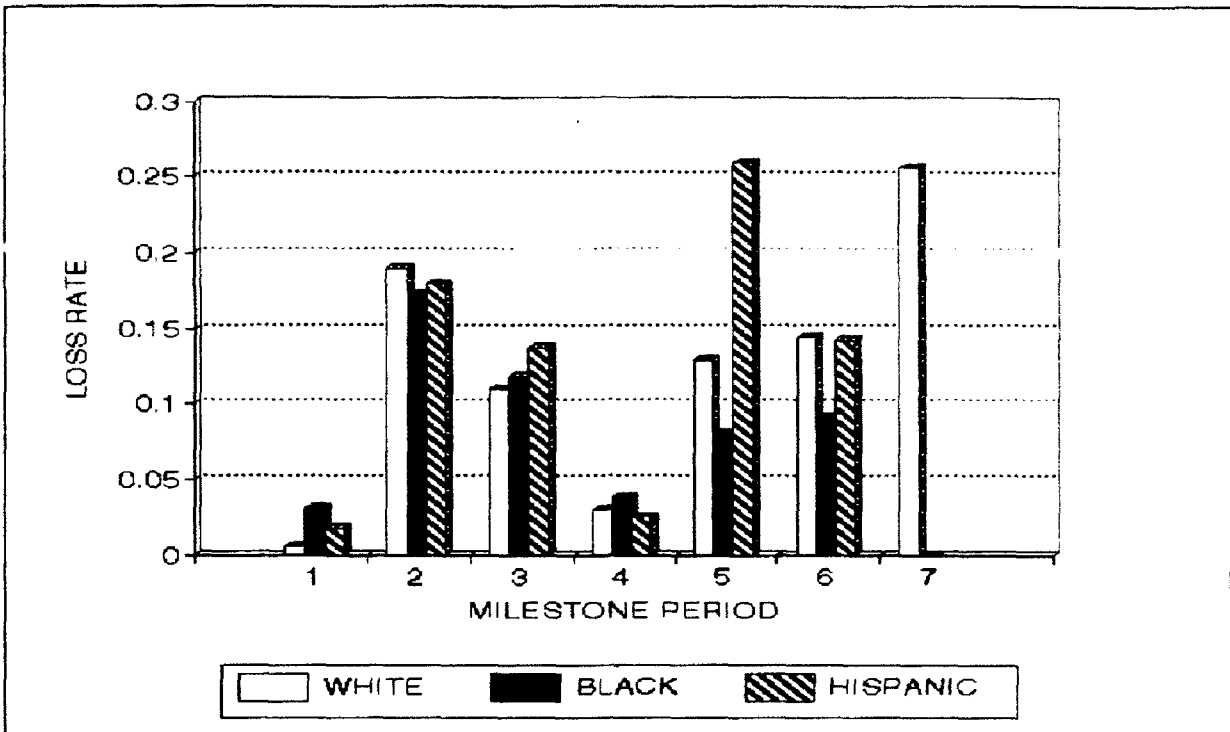
B = BLACK

H = HISPANIC

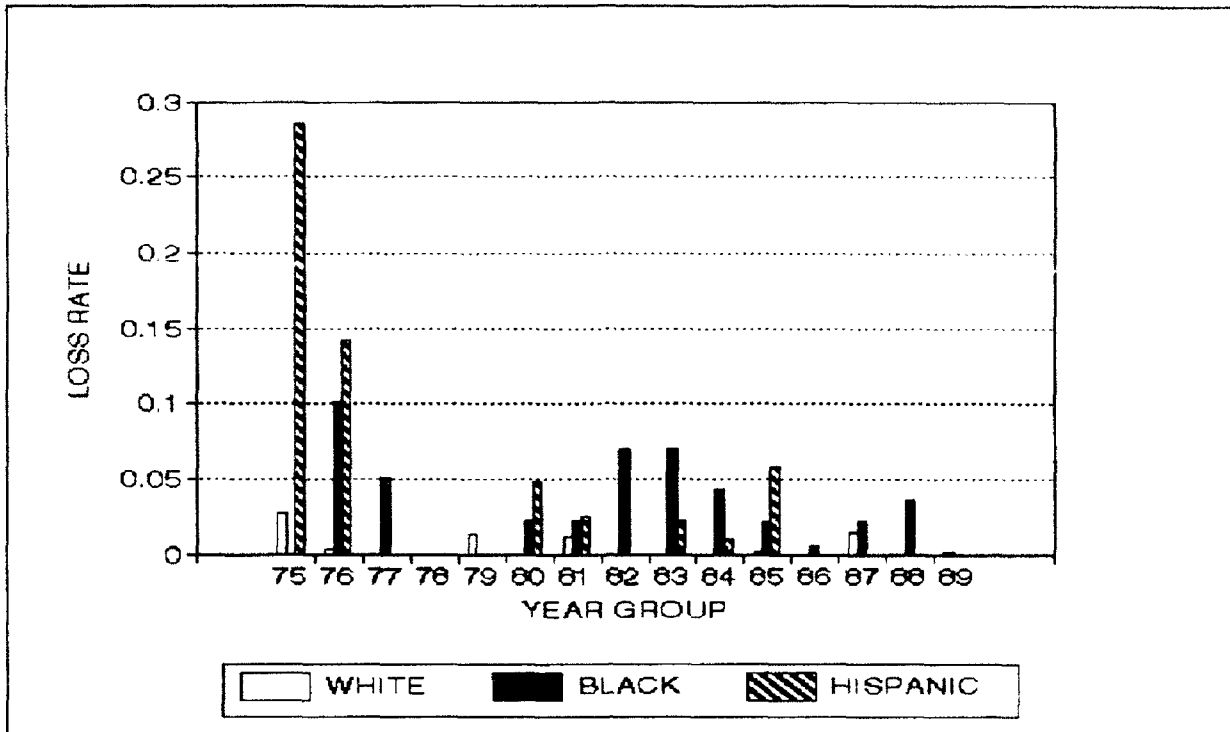
APPENDIX N - SUPPORTING GRAPHS FOR THE SURFACE WARFARE COMMUNITY



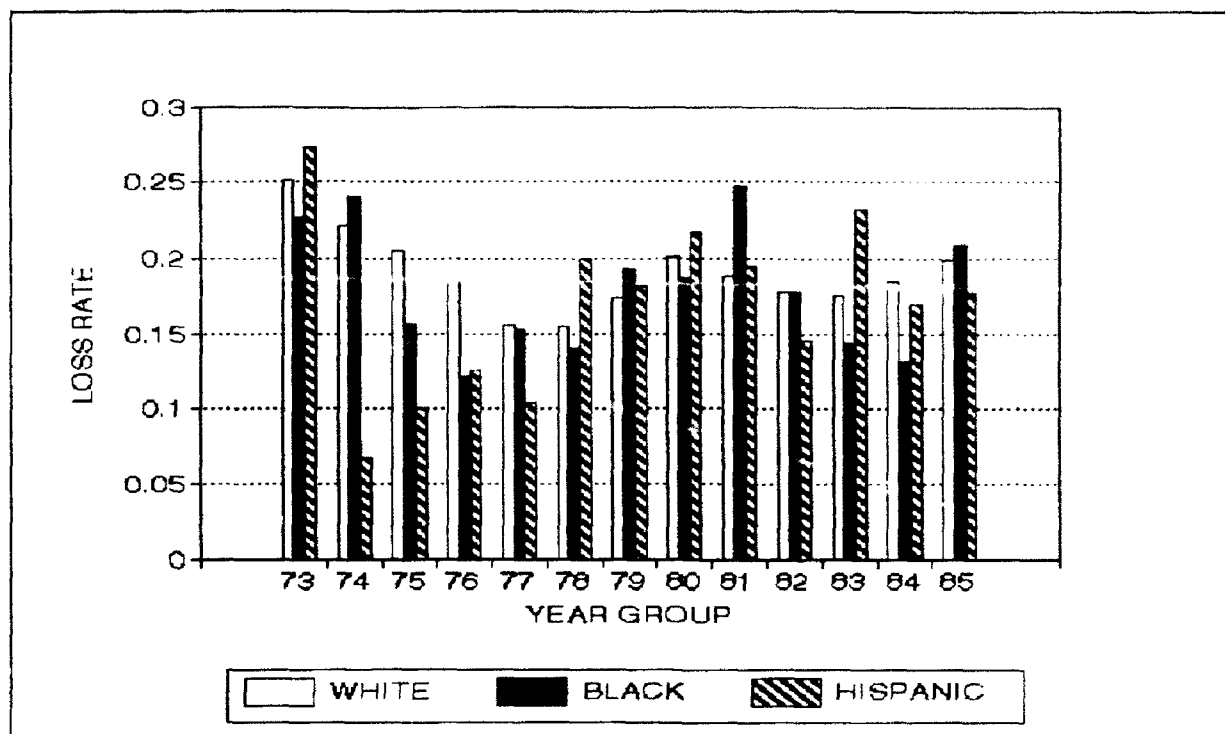
**Figure 3** Loss Rates of Surface Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups



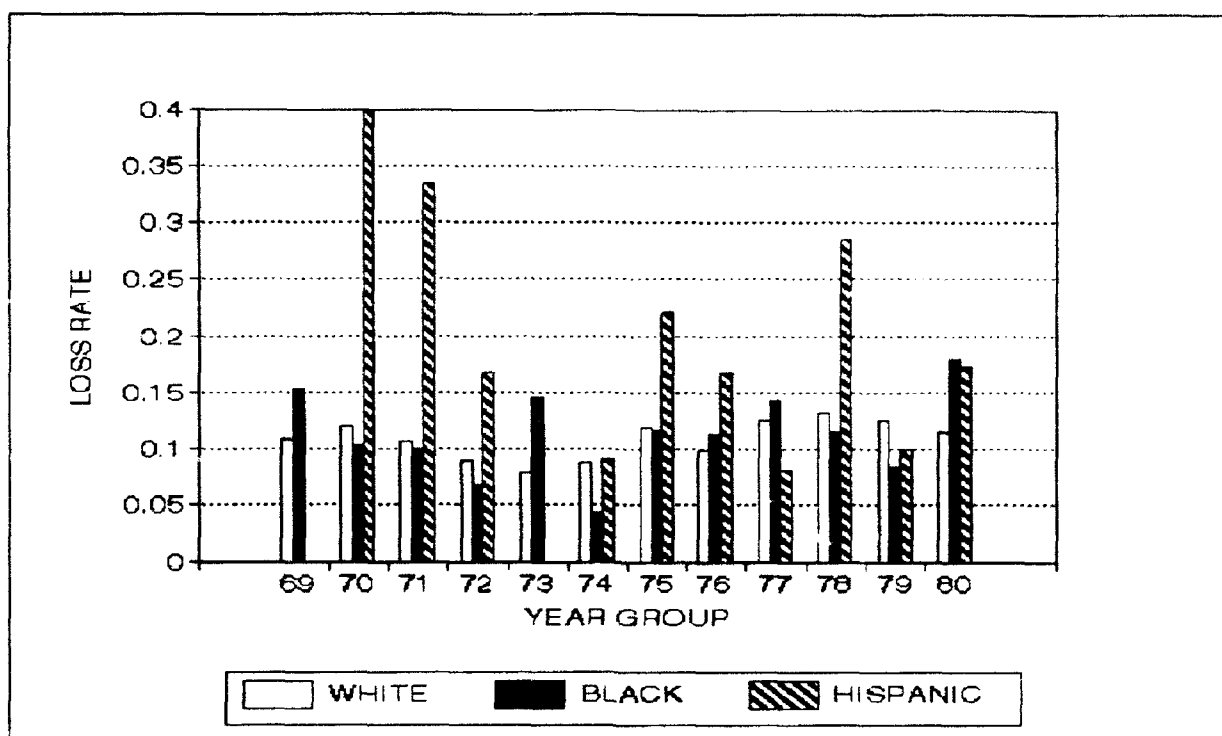
**Figure 4** Loss Rates of Surface Warfare Officers by Ethnic Group by Milestone Period Averaged Across Year Groups



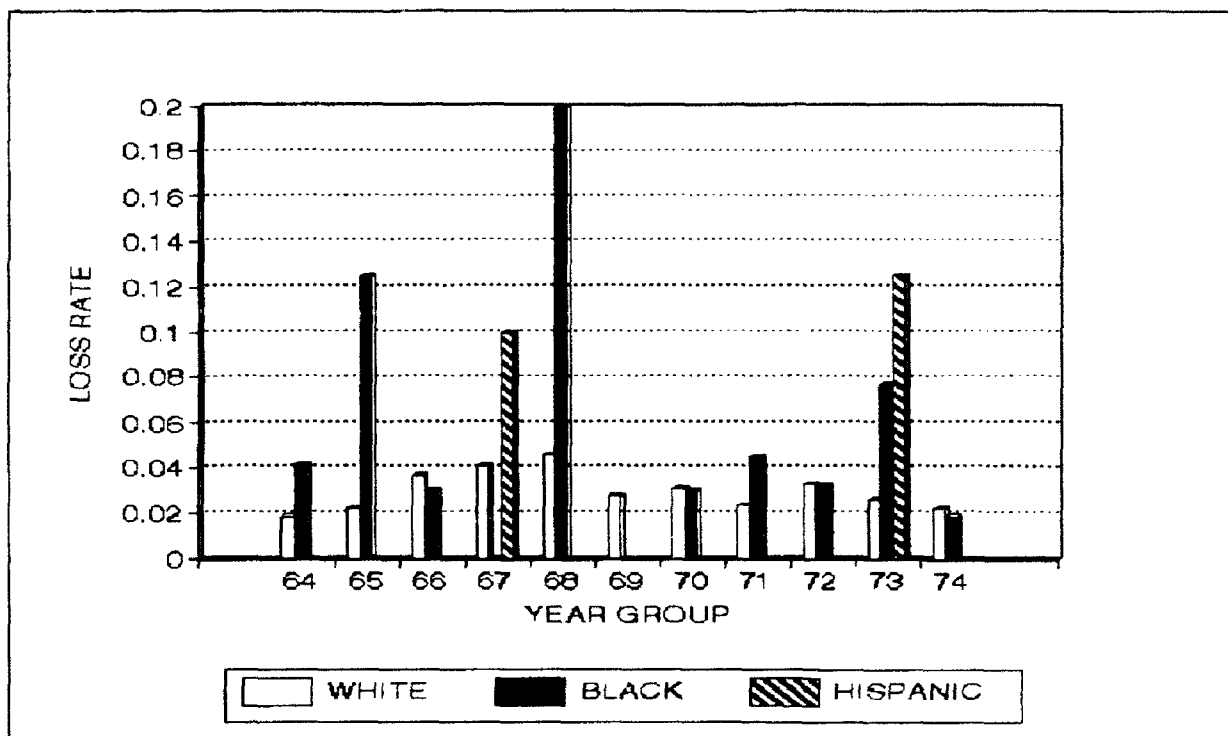
**Figure 5** Loss Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 1



**Figure 6** Loss Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 2

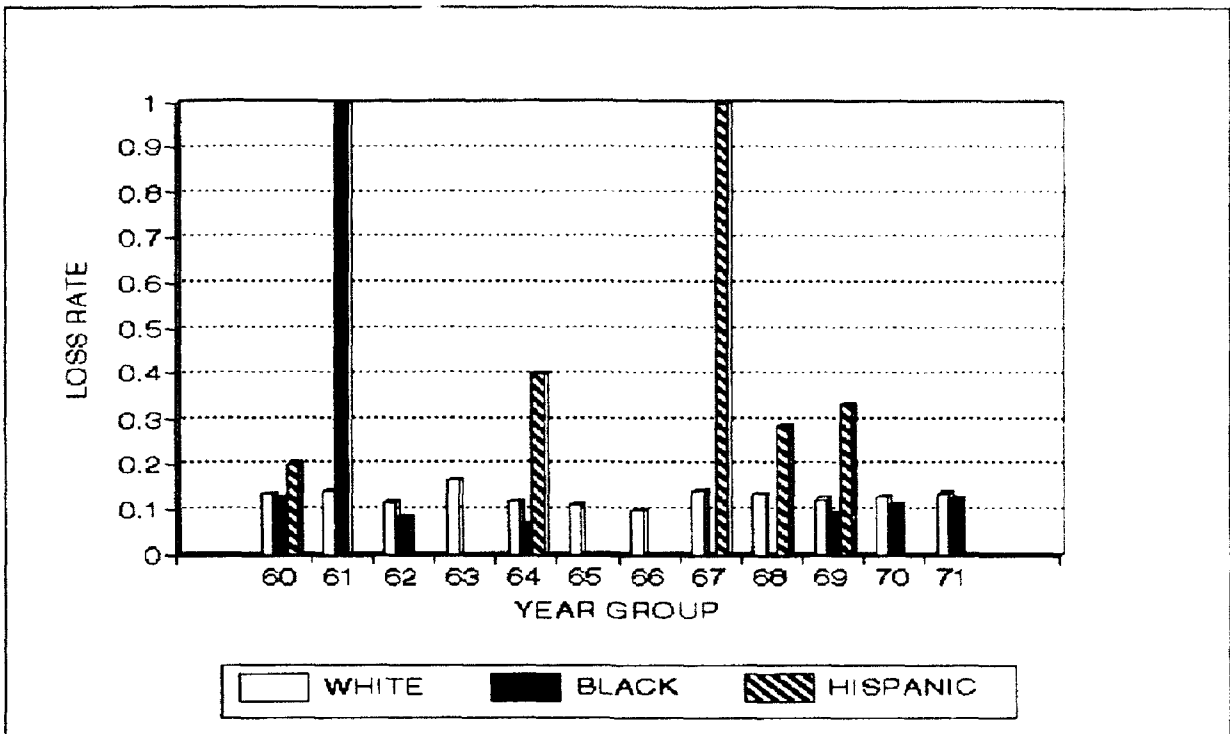


**Figure 7** Loss Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 3

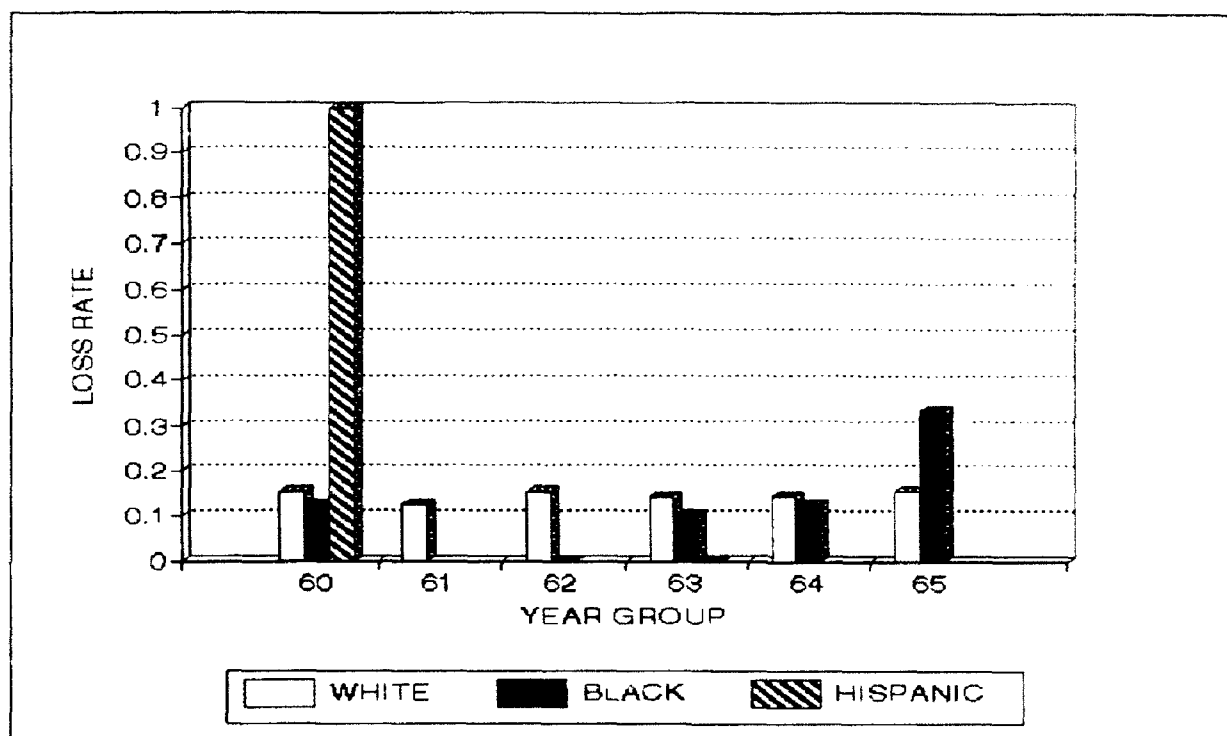


**Figure 8** Loss Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 4

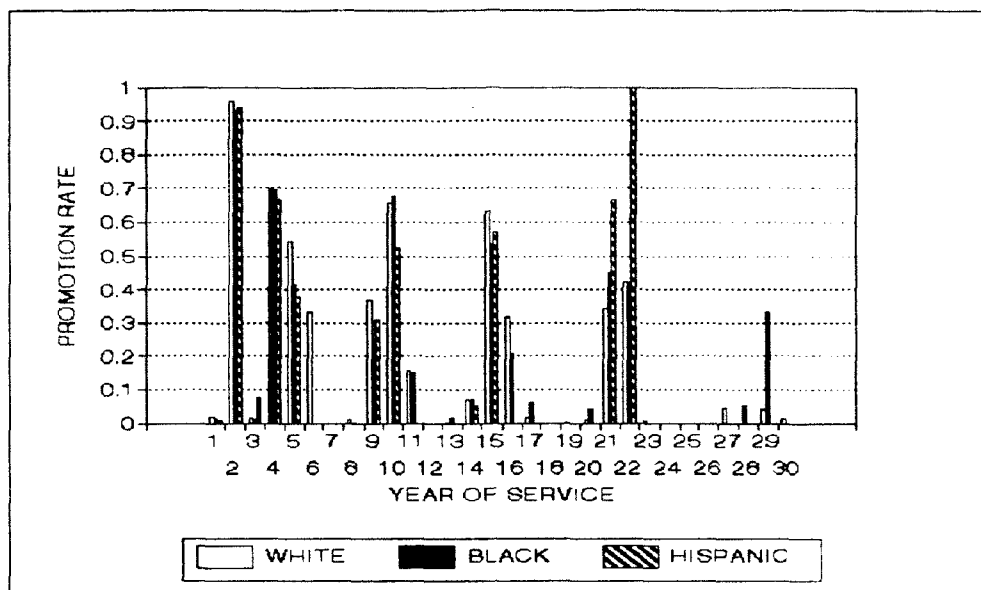




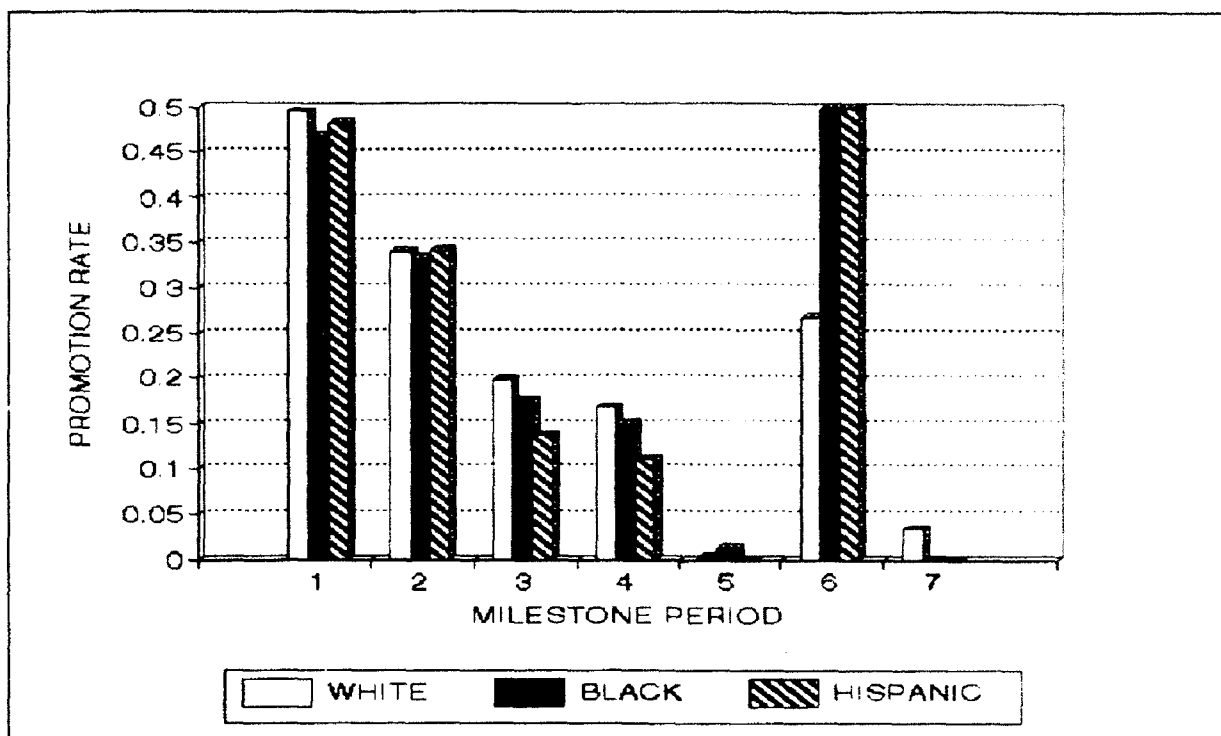
**Figure 9** Loss Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 5



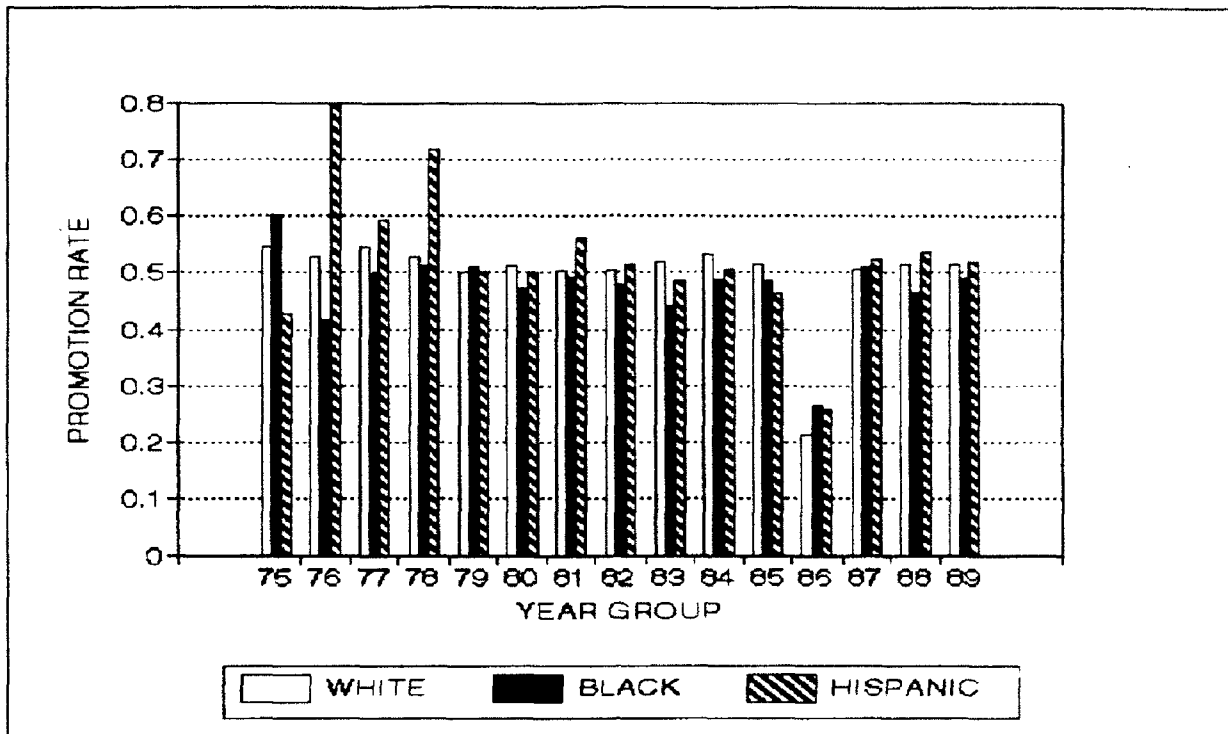
**Figure 10** Loss Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 6



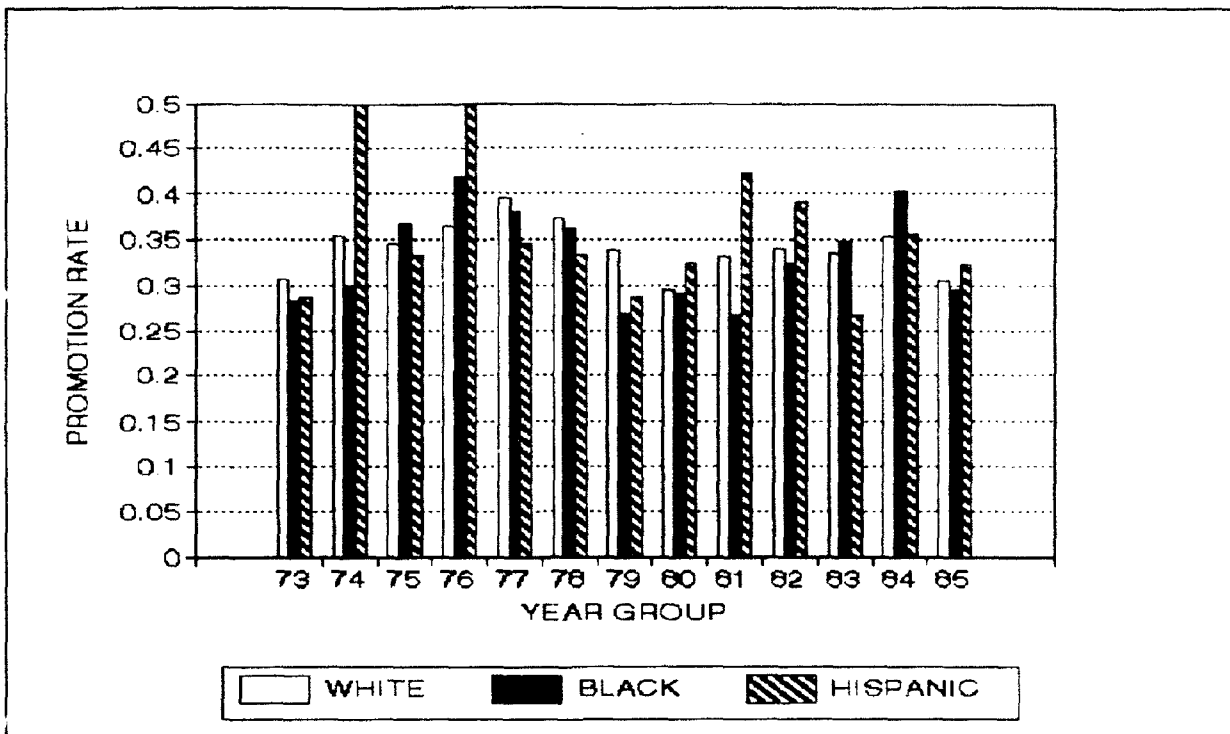
**Figure 11** Promotion Rates of Surface Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups



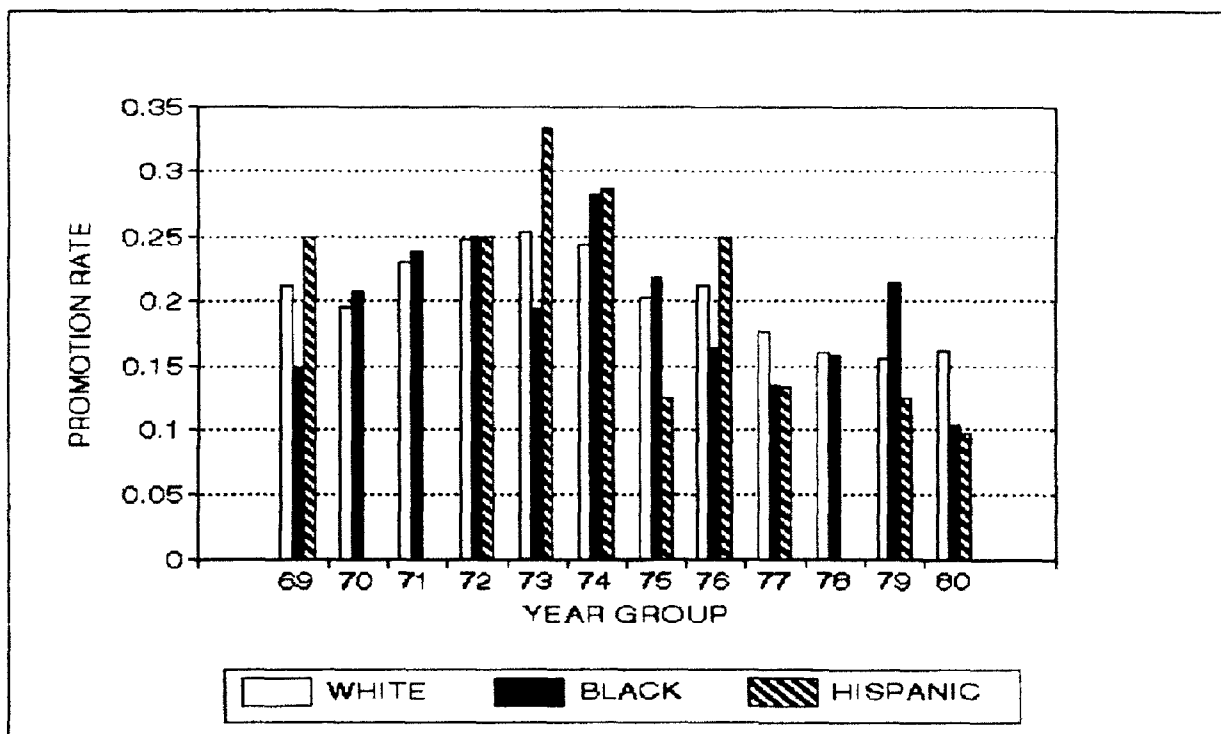
**Figure 12** Promotion Rates of Surface Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups



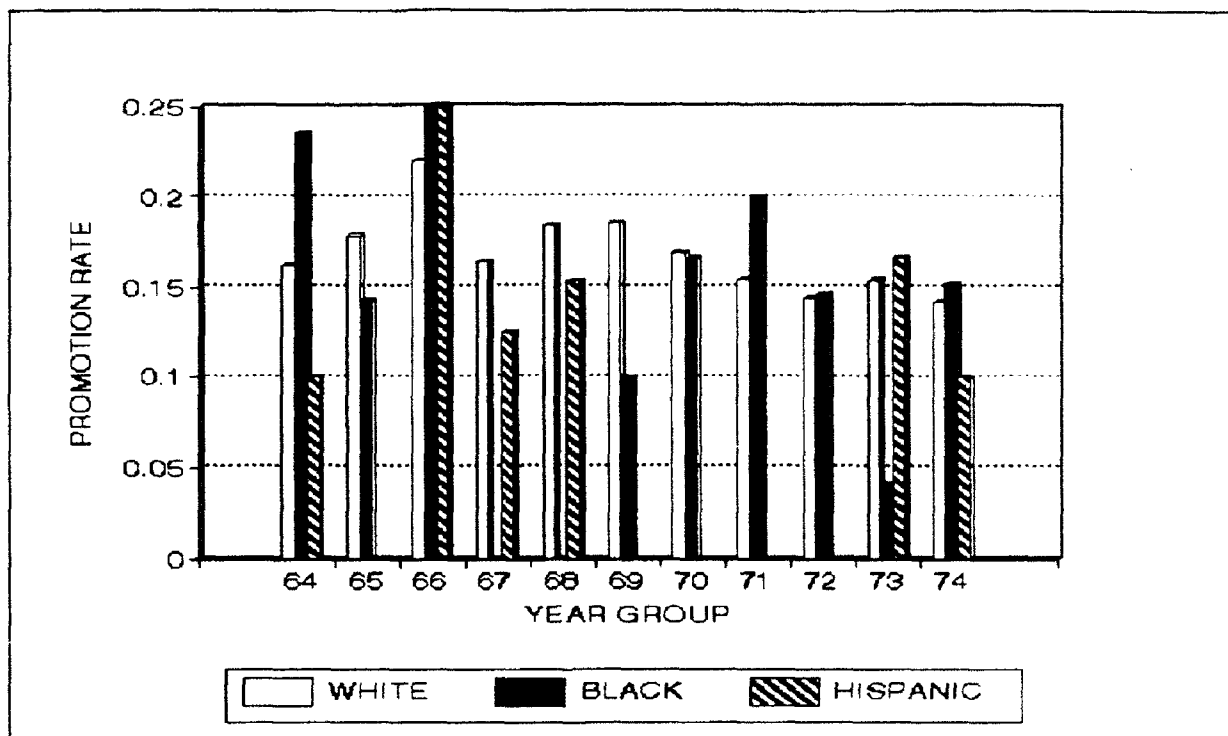
**Figure 13** Promotion Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 1



**Figure 14** Promotion Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 2

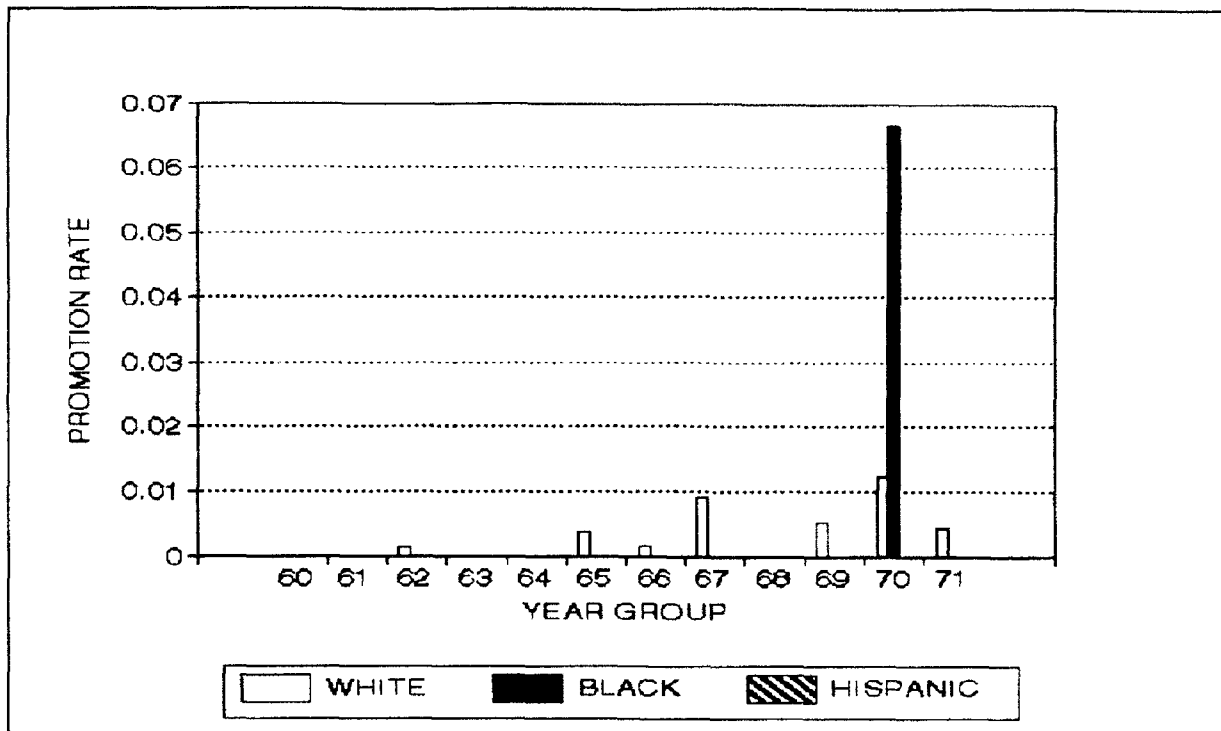


**Figure 15** Promotion Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 3

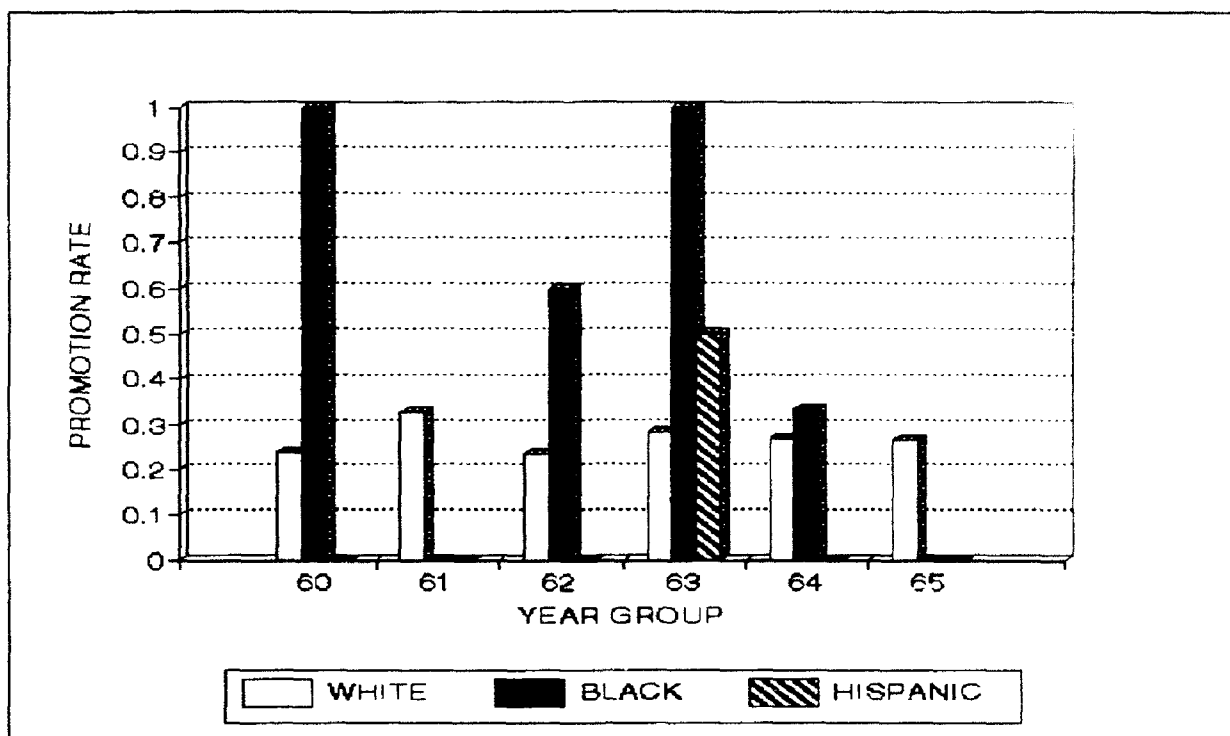


**Figure 16** Promotion Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 4

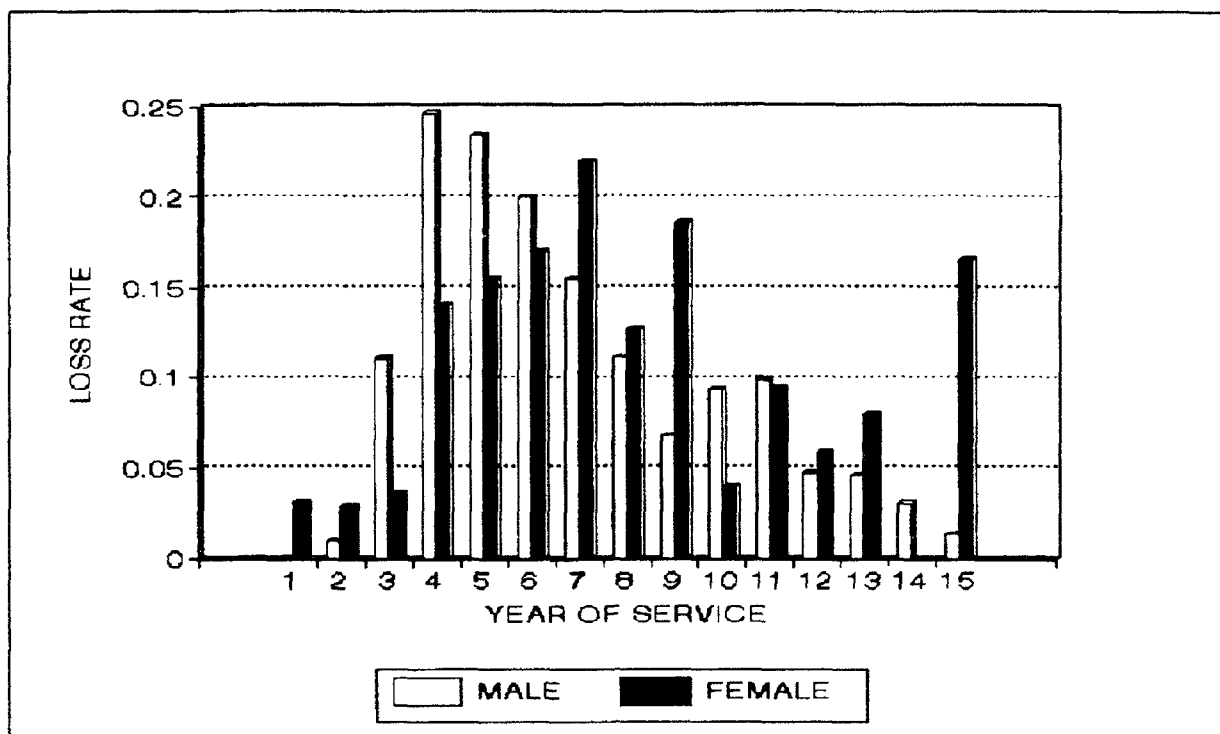




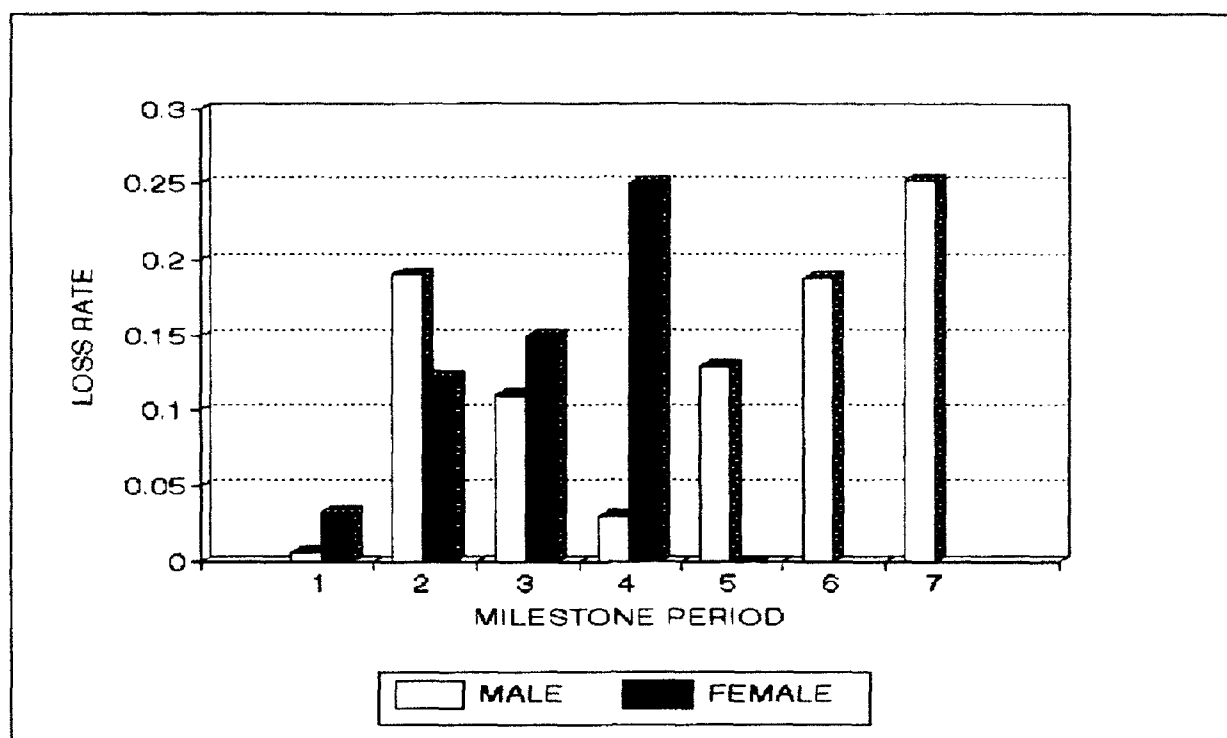
**Figure 17** Promotion Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 5



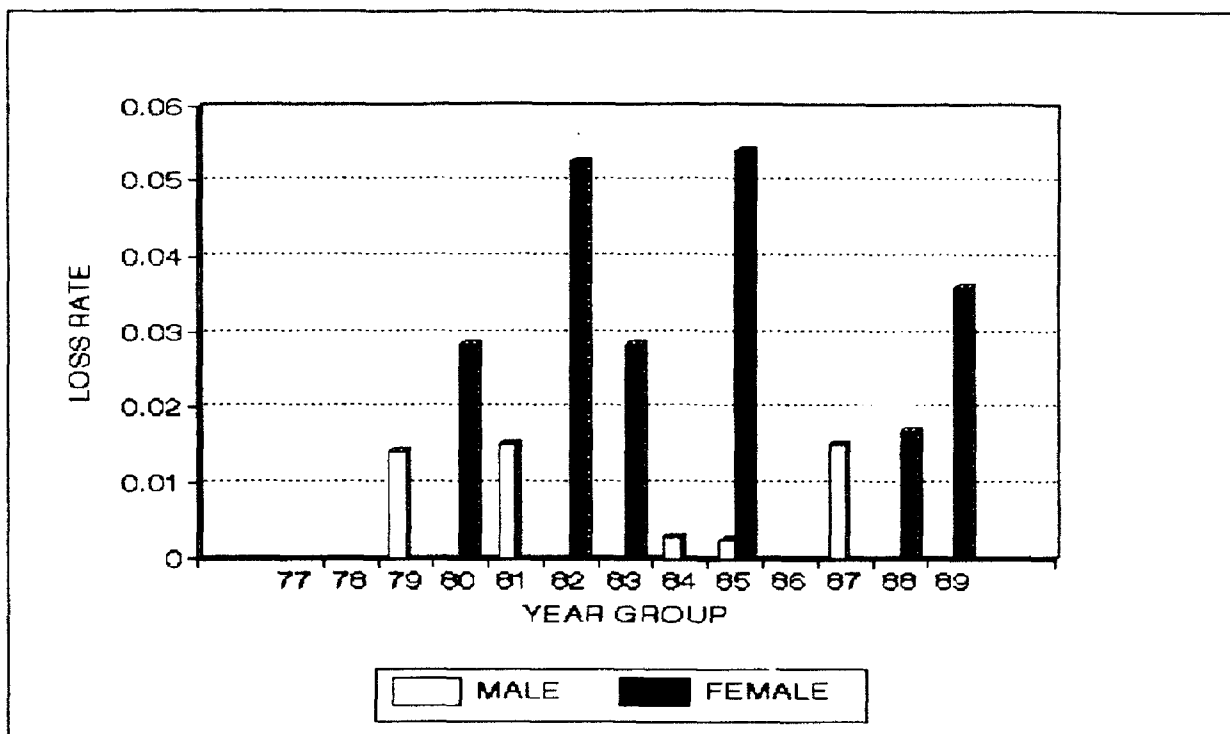
**Figure 18** Promotion Rates of Surface Warfare Officers by Ethnic Group for Milestone Period 6



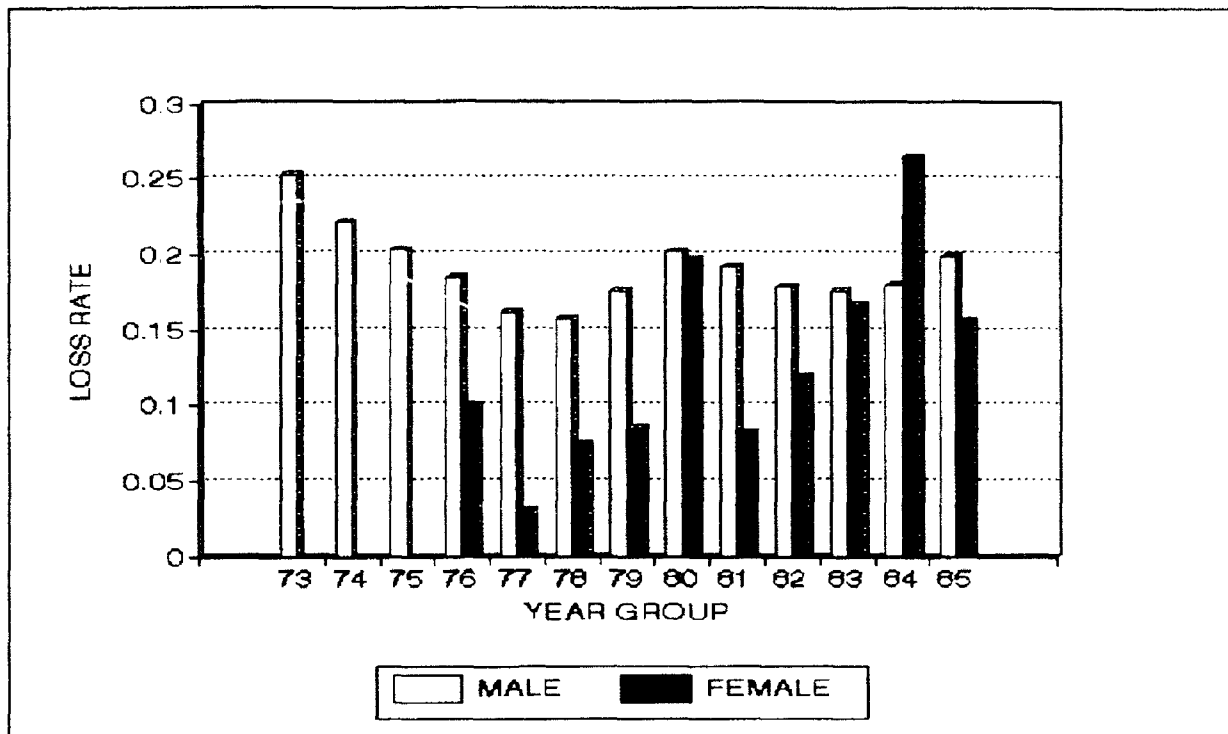
**Figure 19** Loss Rates of Surface Warfare Officers by Gender by Year of Service Averaged Across Year Groups



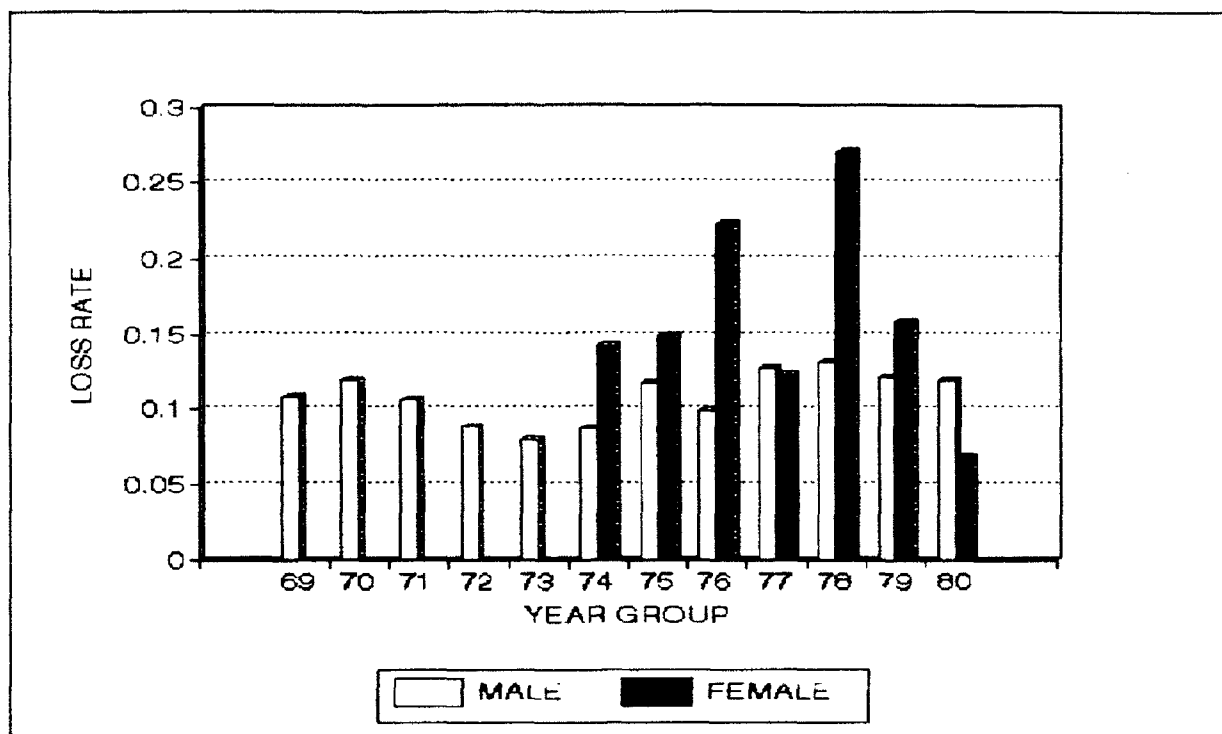
**Figure 20** Loss Rates of Surface Warfare Officers by Gender by Milestone Period Averaged Across Year Groups



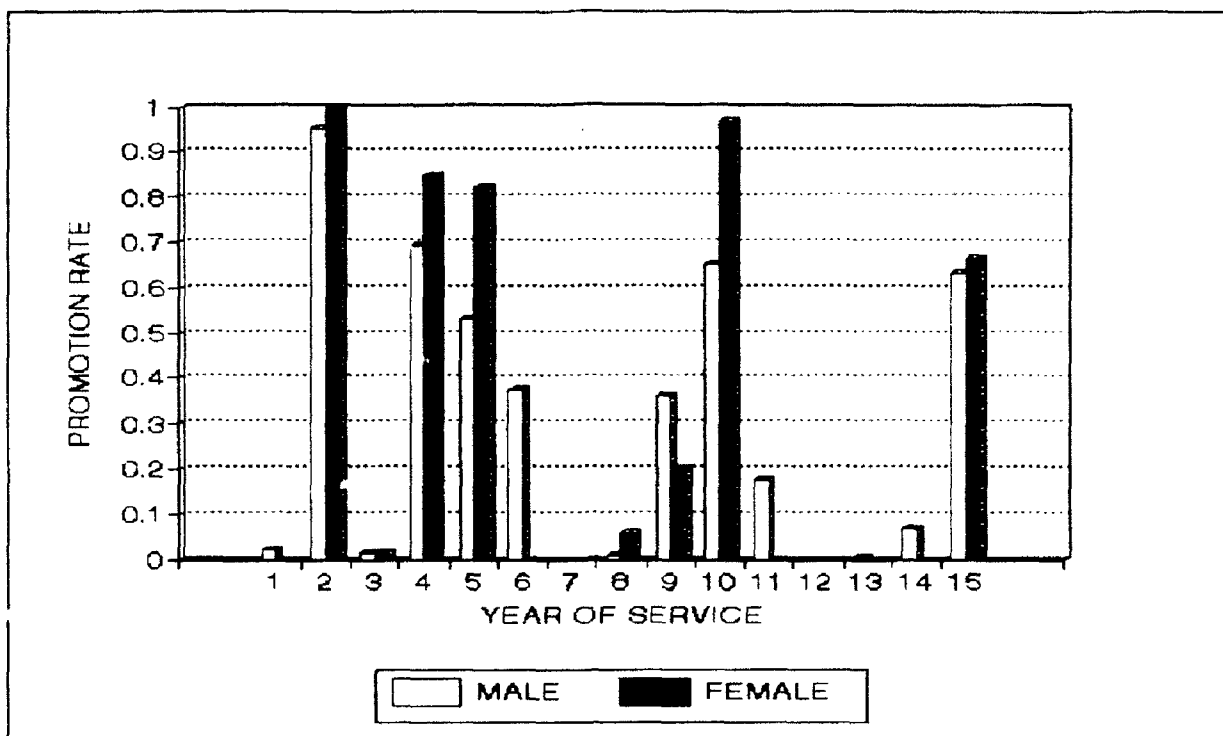
**Figure 21** Loss Rates of Surface Warfare Officers by Gender for Milestone Period 1



**Figure 22** Loss Rates of Surface Warfare Officers by Gender for Milestone Period 2

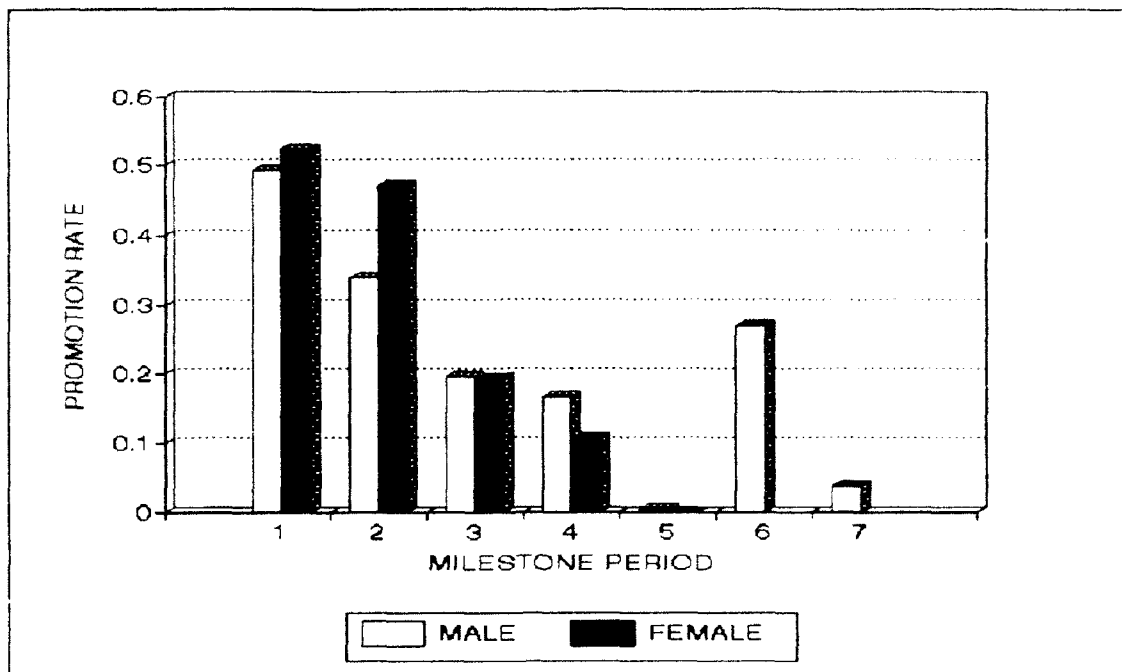


**Figure 23** Loss Rates of Surface Warfare Officers by Gender for Milestone Period 3

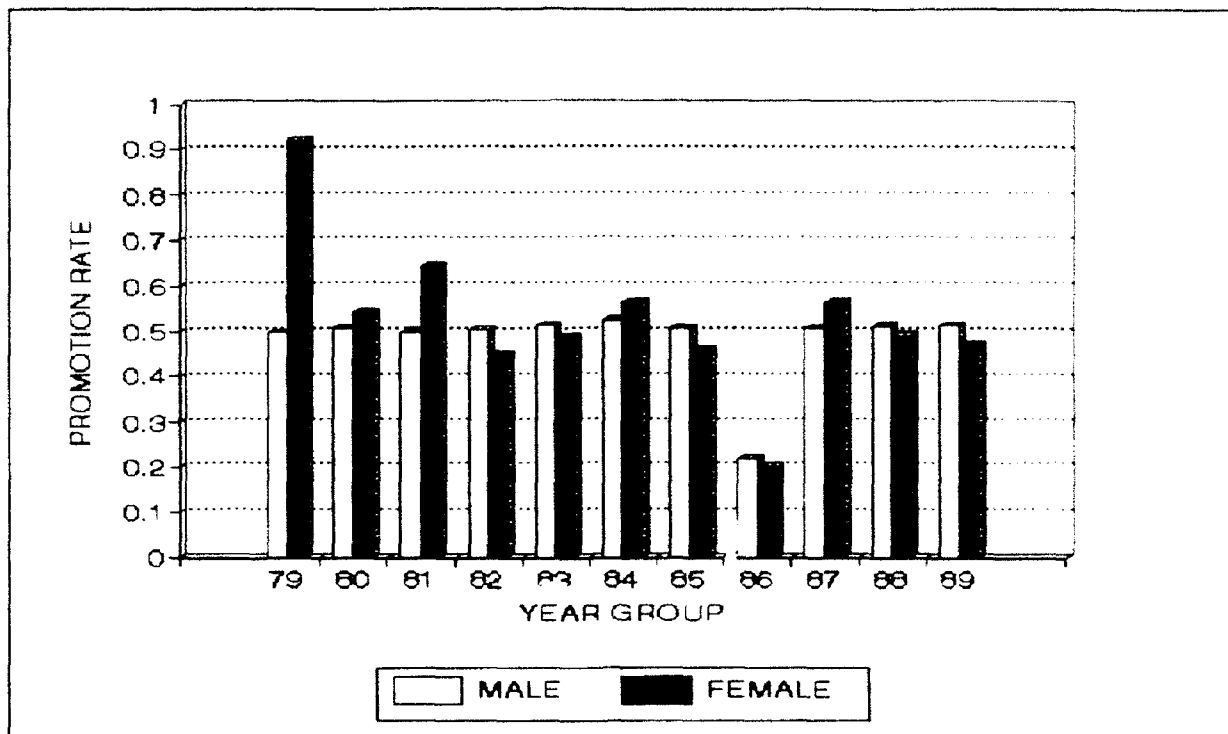


**Figure 24** Promotion Rates of Surface Warfare Officers by Gender by Year of Service Averaged Across Year Groups

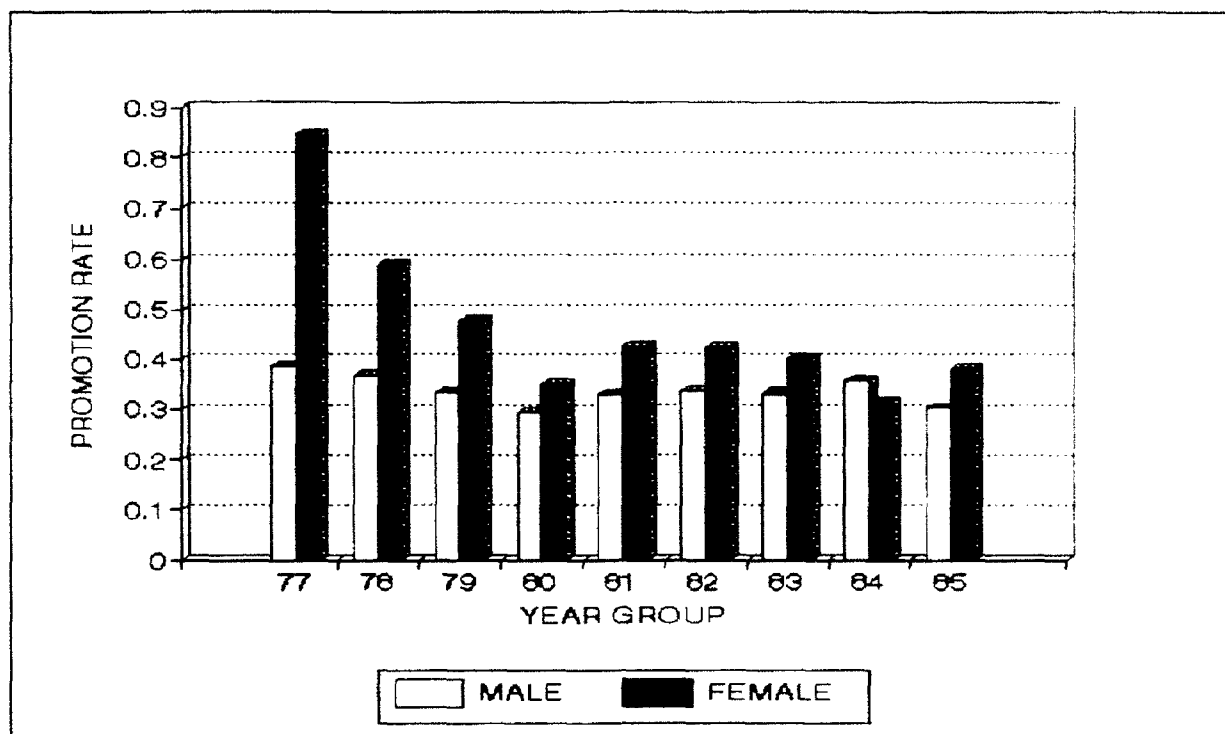




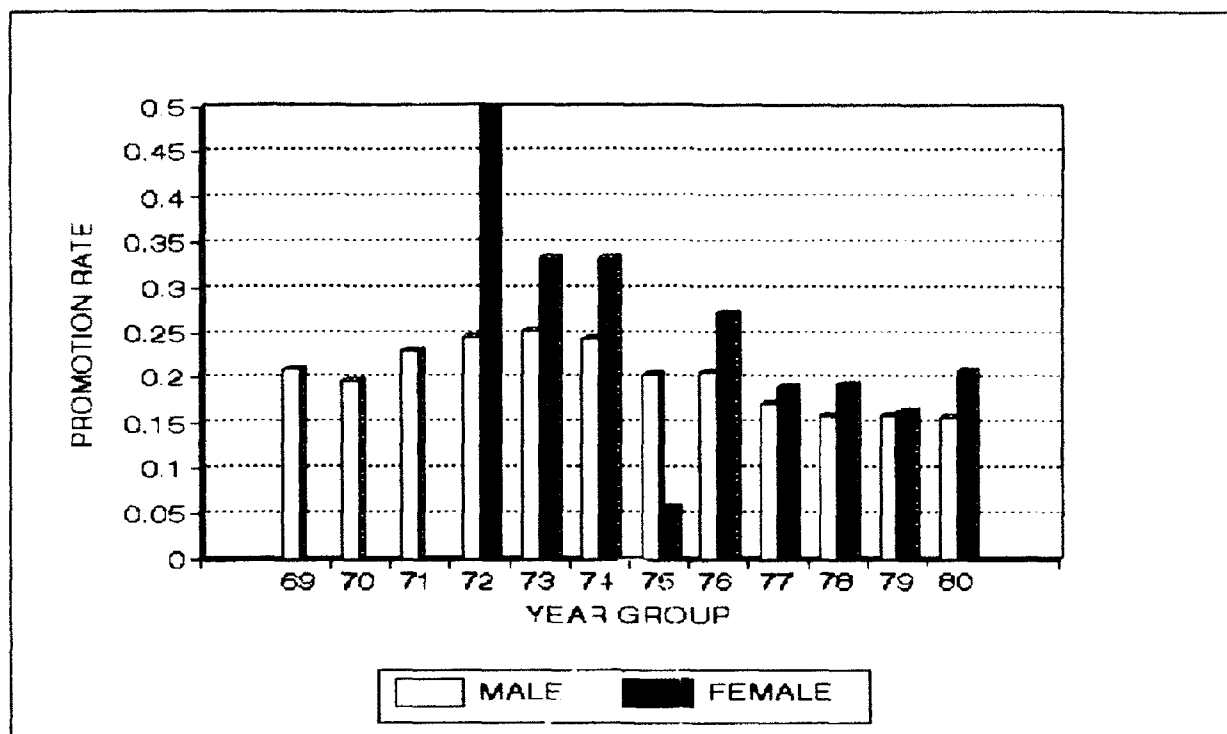
**Figure 25** Promotion Rates of Surface Warfare Officers by Gender by Milestone Period Averaged Across Year Groups



**Figure 26** Promotion Rates of Surface Warfare Officers by Gender for Milestone Period 1

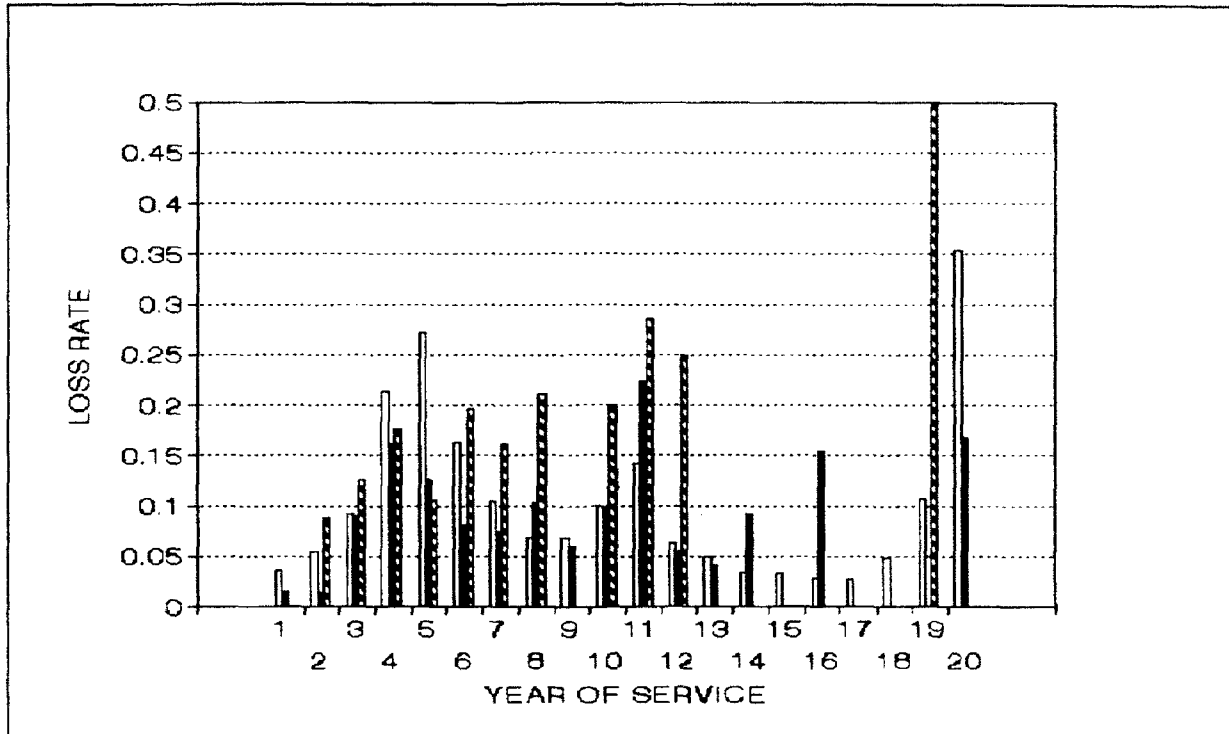


**Figure 27** Promotion Rates of Surface Warfare Officers by Gender for Milestone Period 2

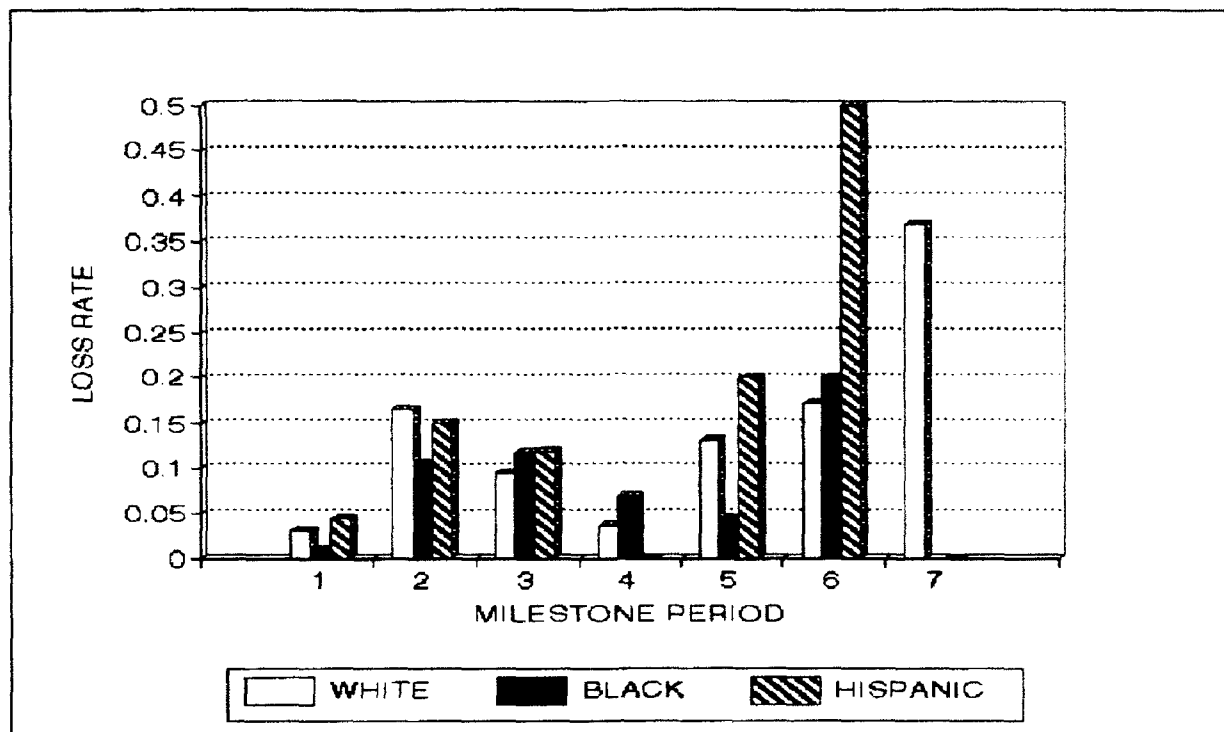


**Figure 28** Promotion Rates of Surface Warfare Officers by Gender for Milestone Period 3

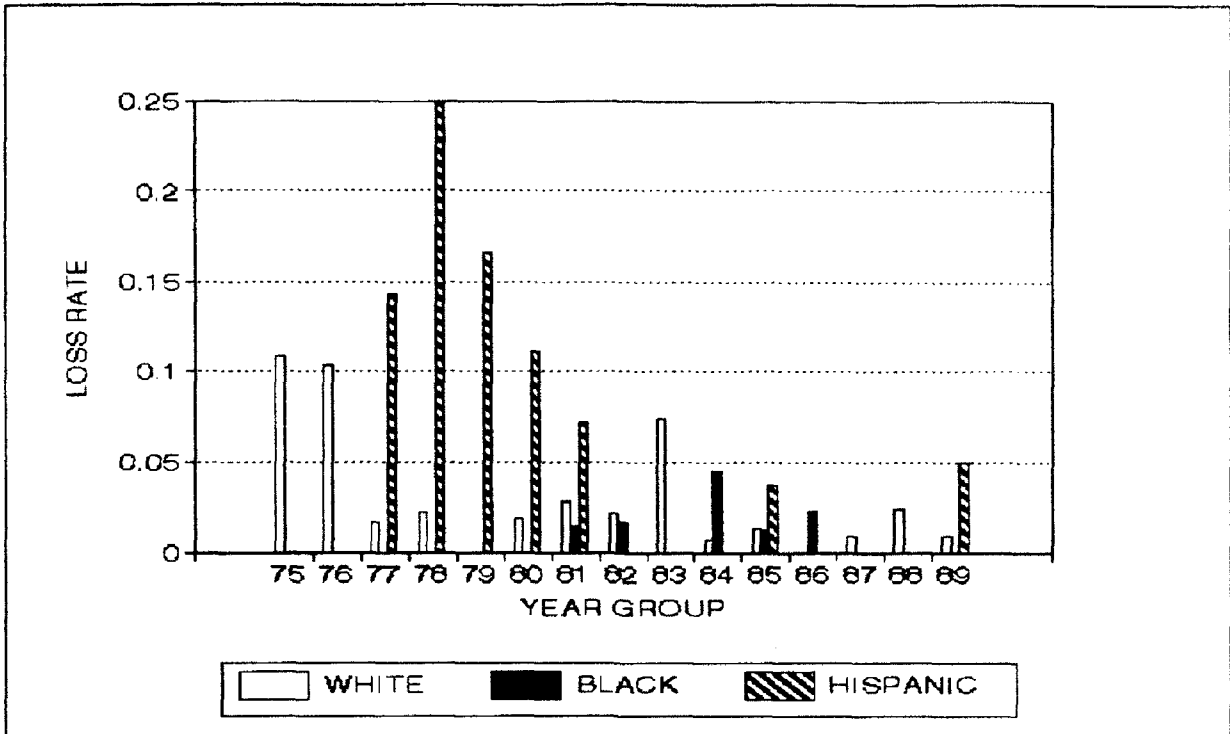
APPENDIX O - SUPPORTING GRAPHS FOR THE GENERAL UNRESTRICTED LINE  
COMMUNITY



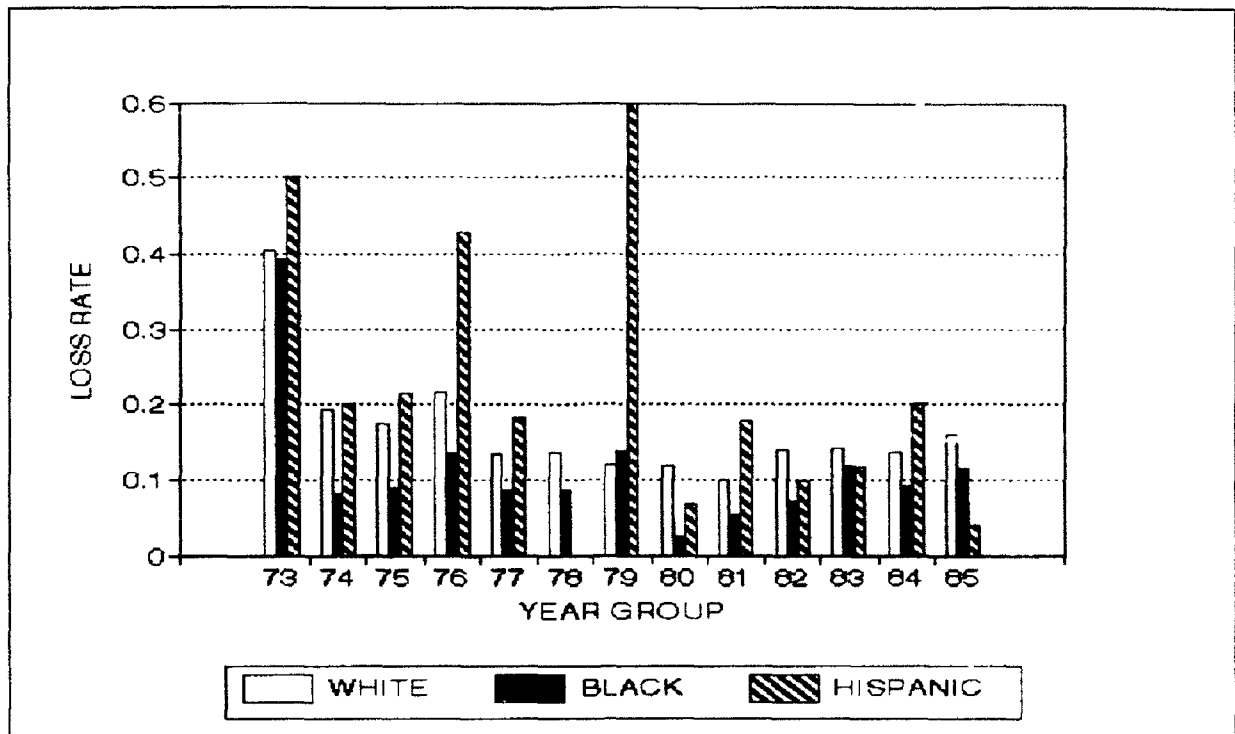
**Figure 29** Loss Rates of GenURL Officers by Ethnic Group by Year of Service Averaged Across Year Groups



**Figure 30** Loss Rates of GenURL Officers by Ethnic Group by Milestone Period Averaged Across Year Groups

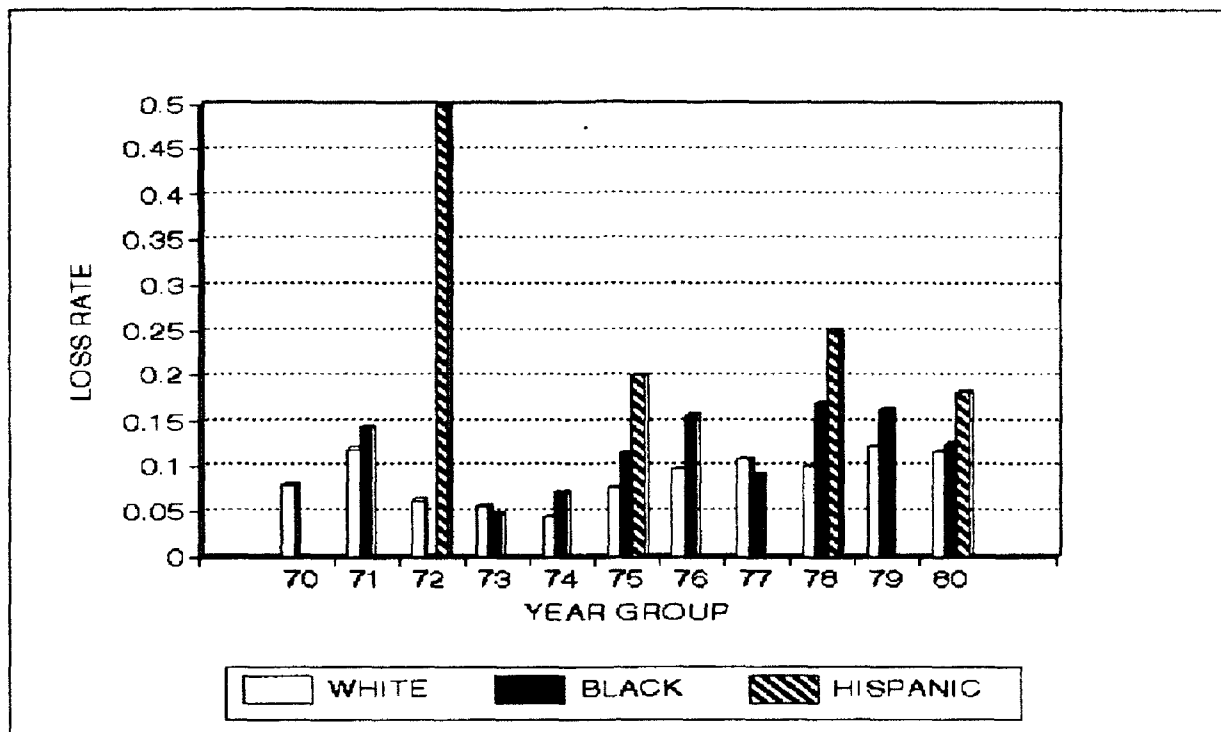


**Figure 31** Loss Rates of GenURL Officers by Ethnic Group for Milestone Period 1

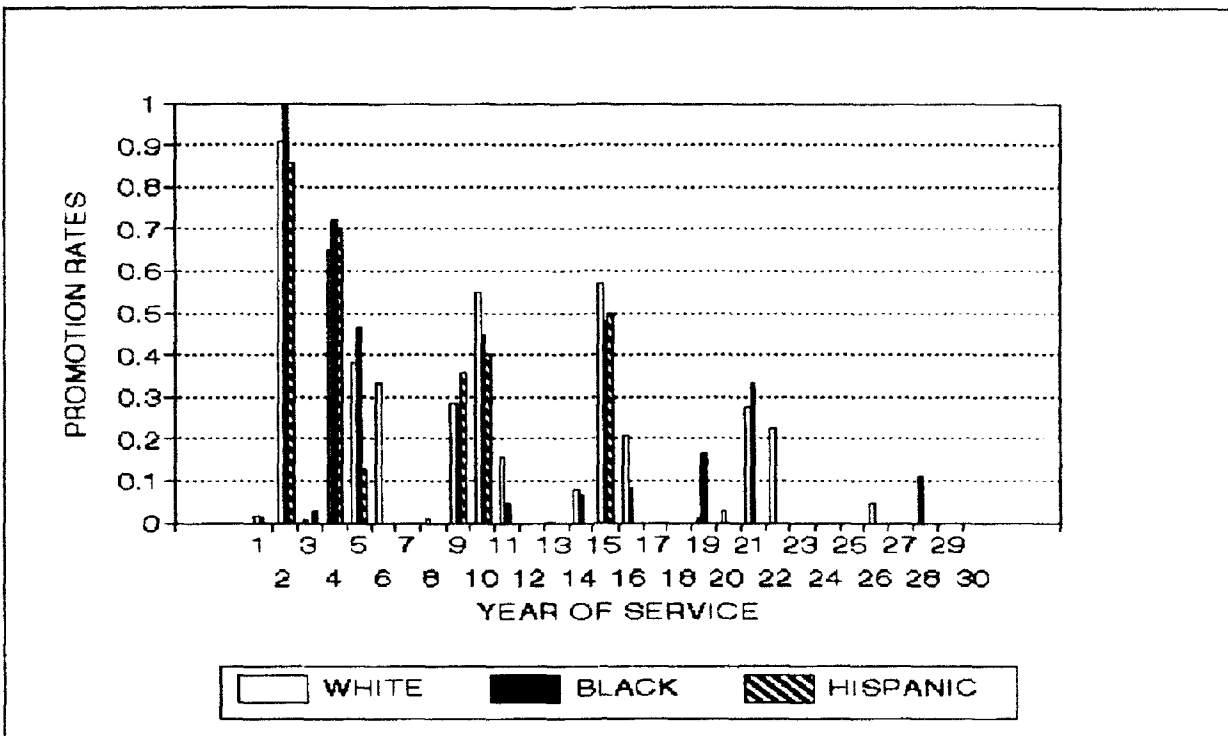


**Figure 32** Loss Rates of GenURL Officers by Ethnic Group for Milestone Period 2

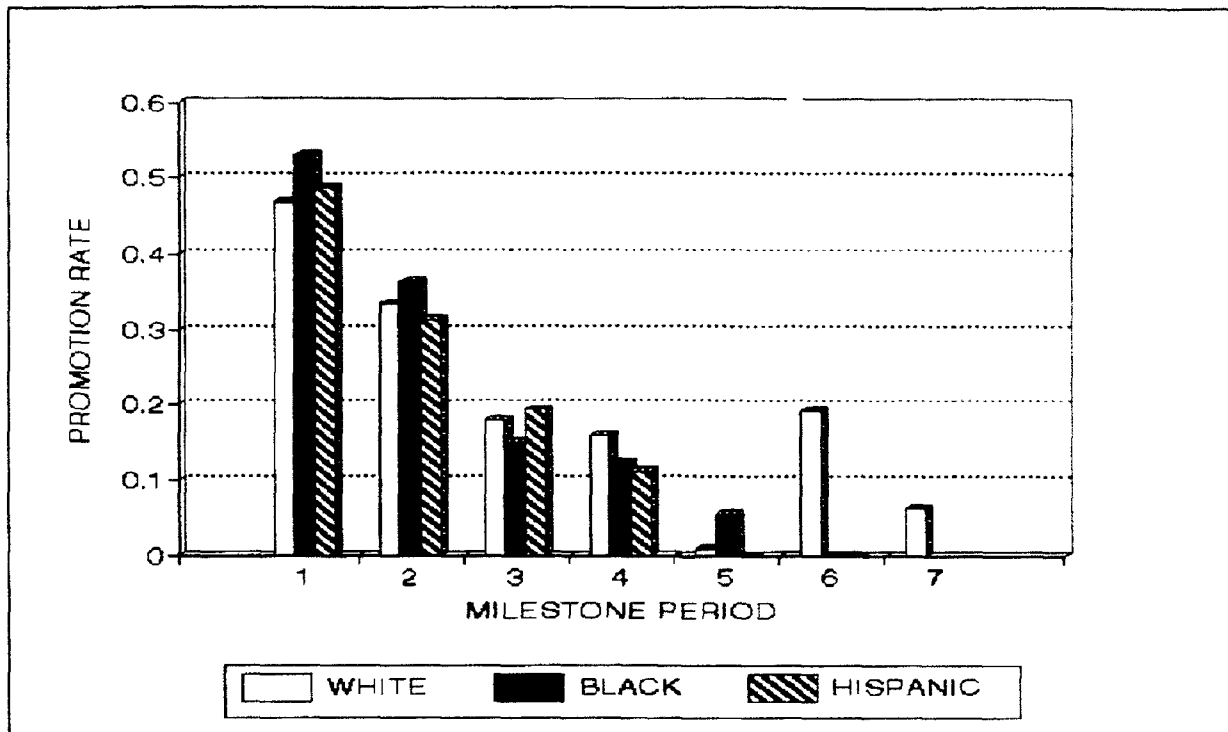




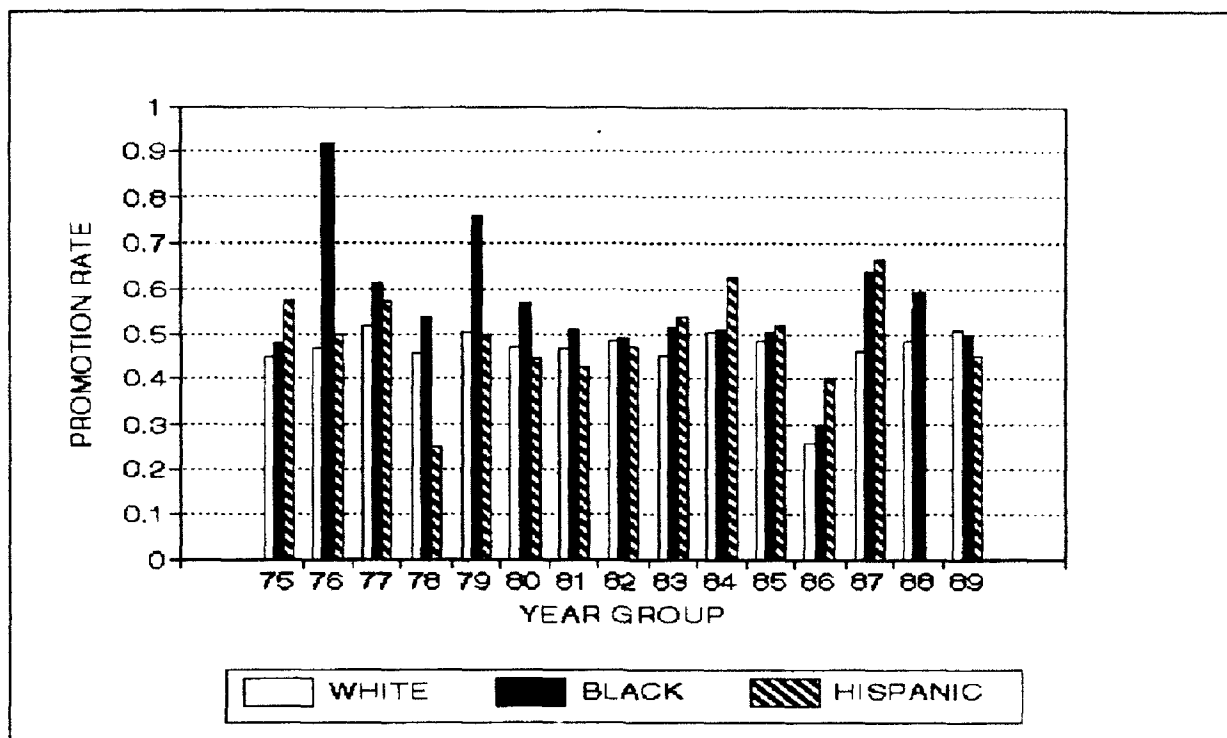
**Figure 33** Loss Rates of GenURL Officers by Ethnic Group for Milestone Period 3



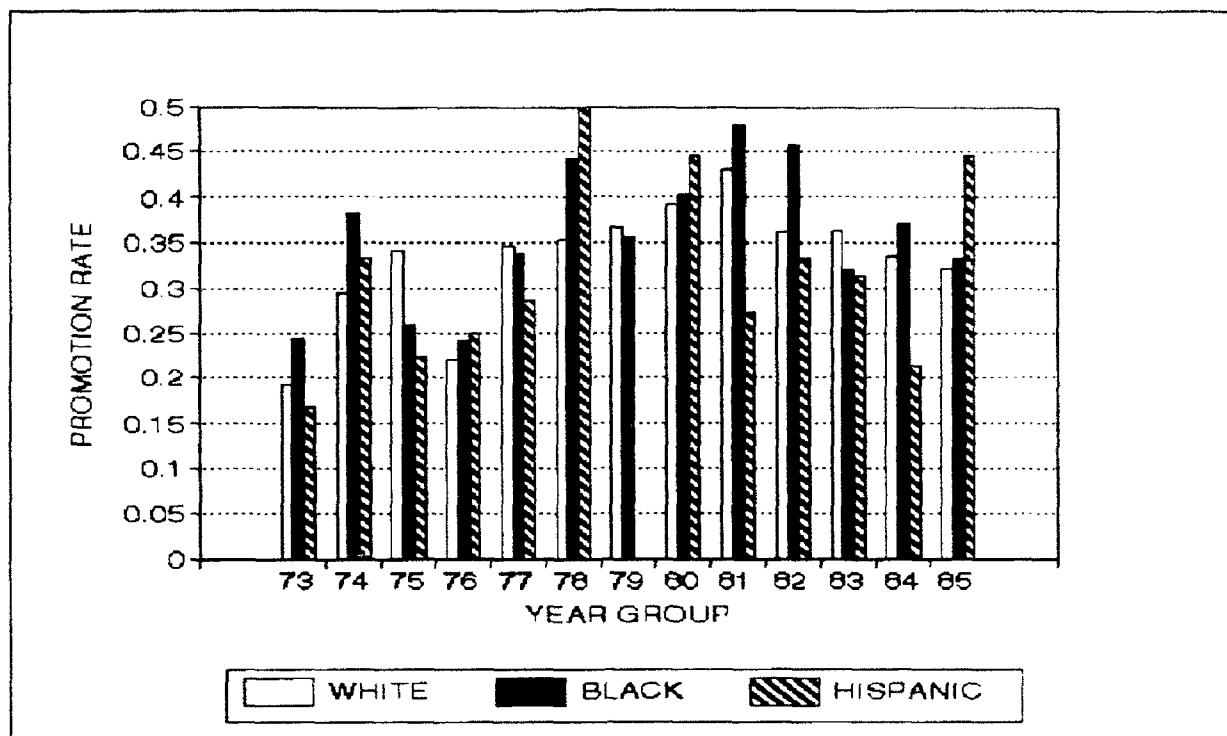
**Figure 34** Promotion Rates of GenURL Officers by Ethnic Group by Year of Service Averaged Across Year Groups



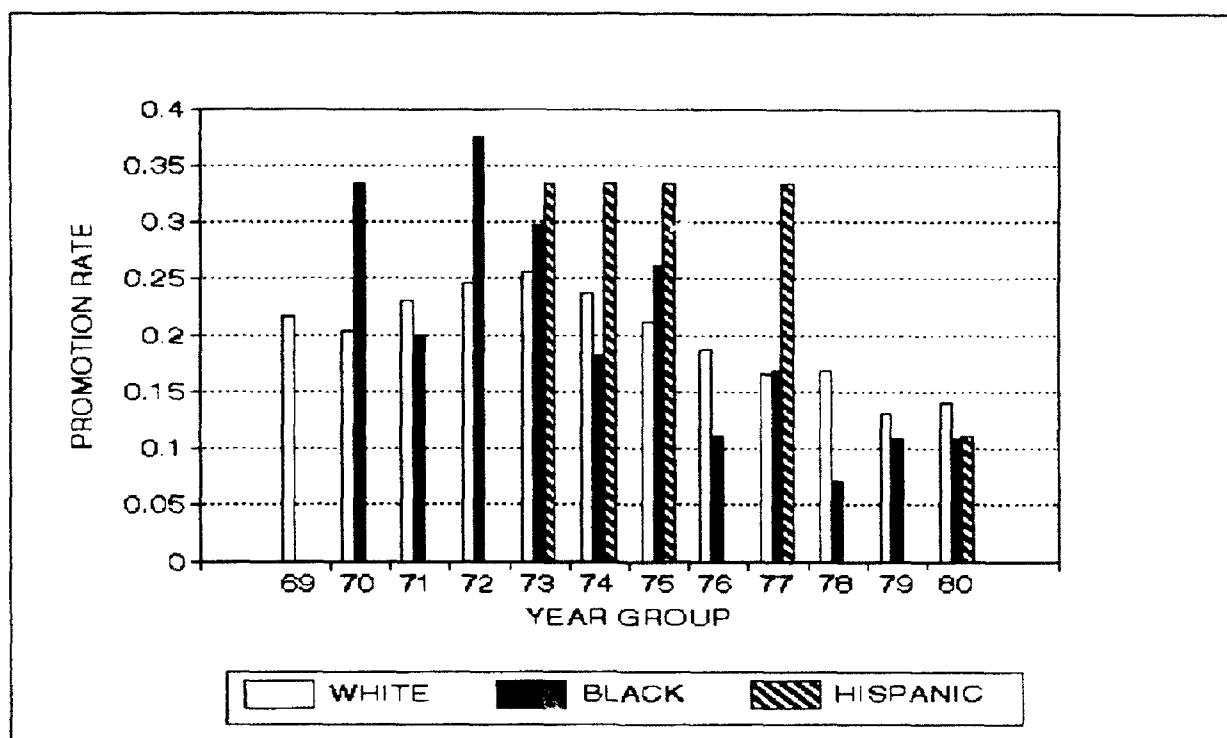
**Figure 35** Promotion Rates of GenURL Officers by Ethnic Group by Milestone Period Averaged Across Year Groups



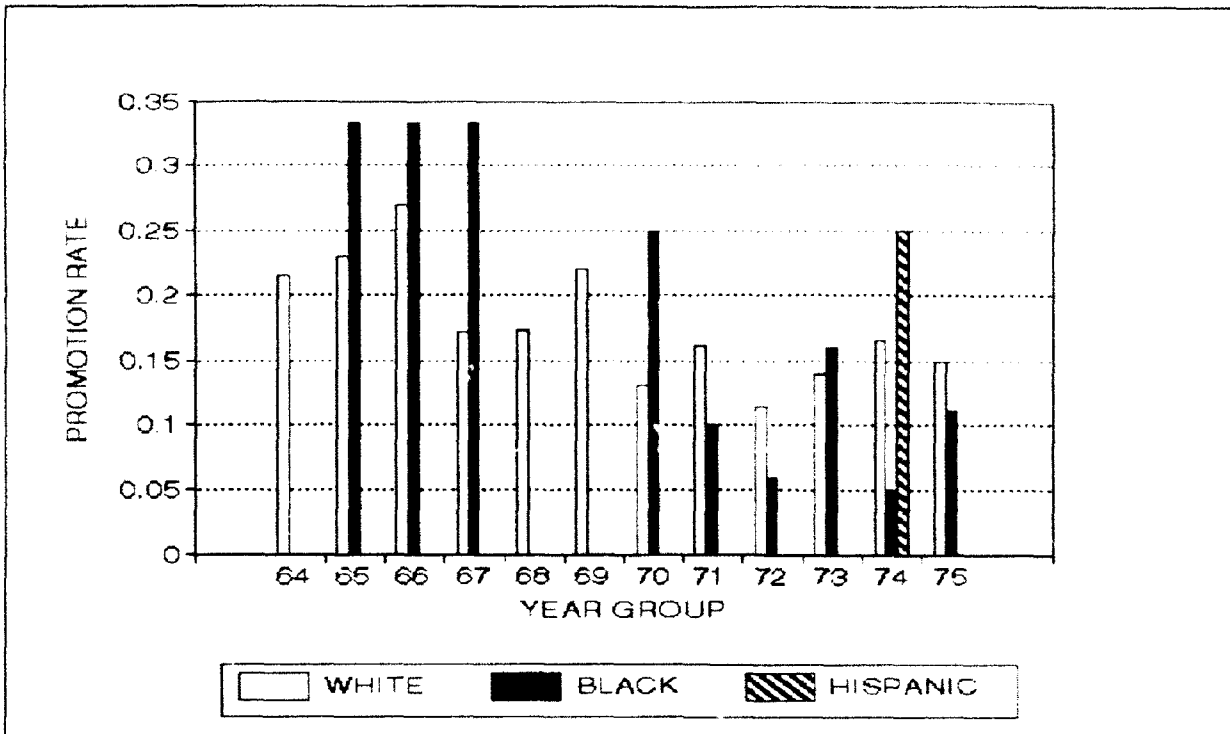
**Figure 36** Promotion Rates of GenURL Officers by Ethnic Group for Milestone Period 1



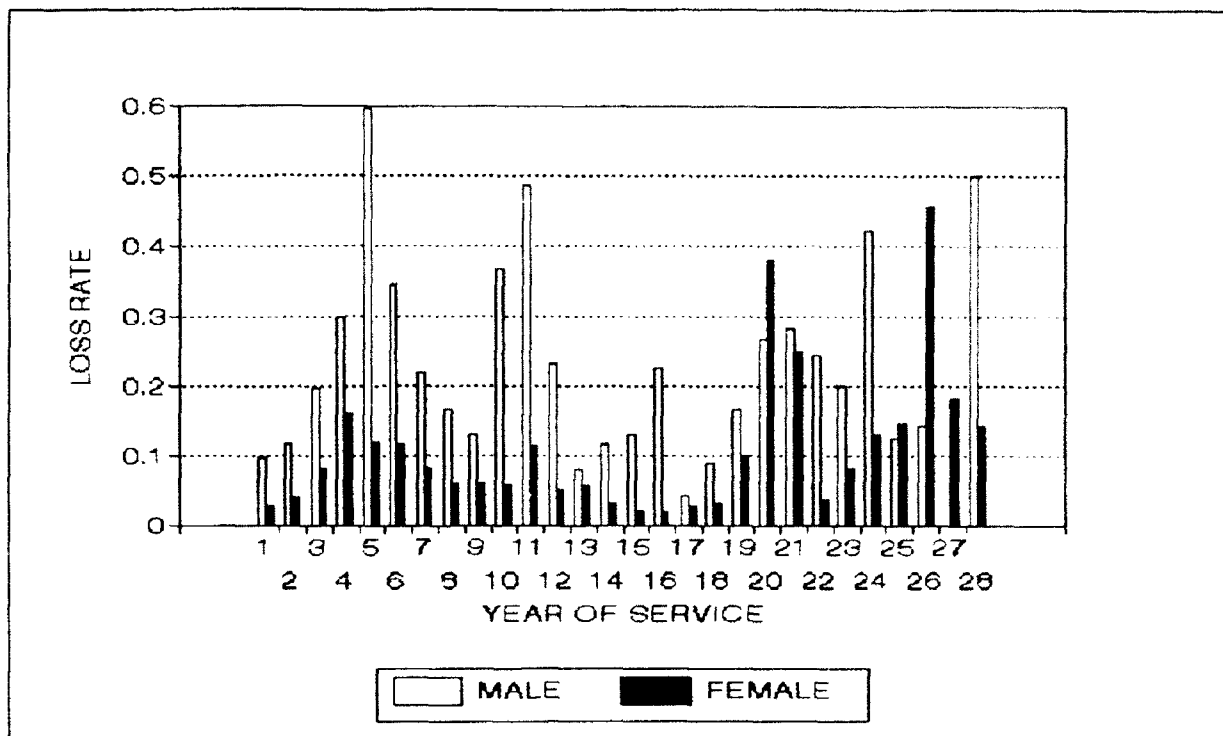
**Figure 37** Promotion Rates of GenURL Officers by Ethnic Group for Milestone Period 2



**Figure 38** Promotion Rates of GenURL Officers by Ethnic Group for Milestone Period 3

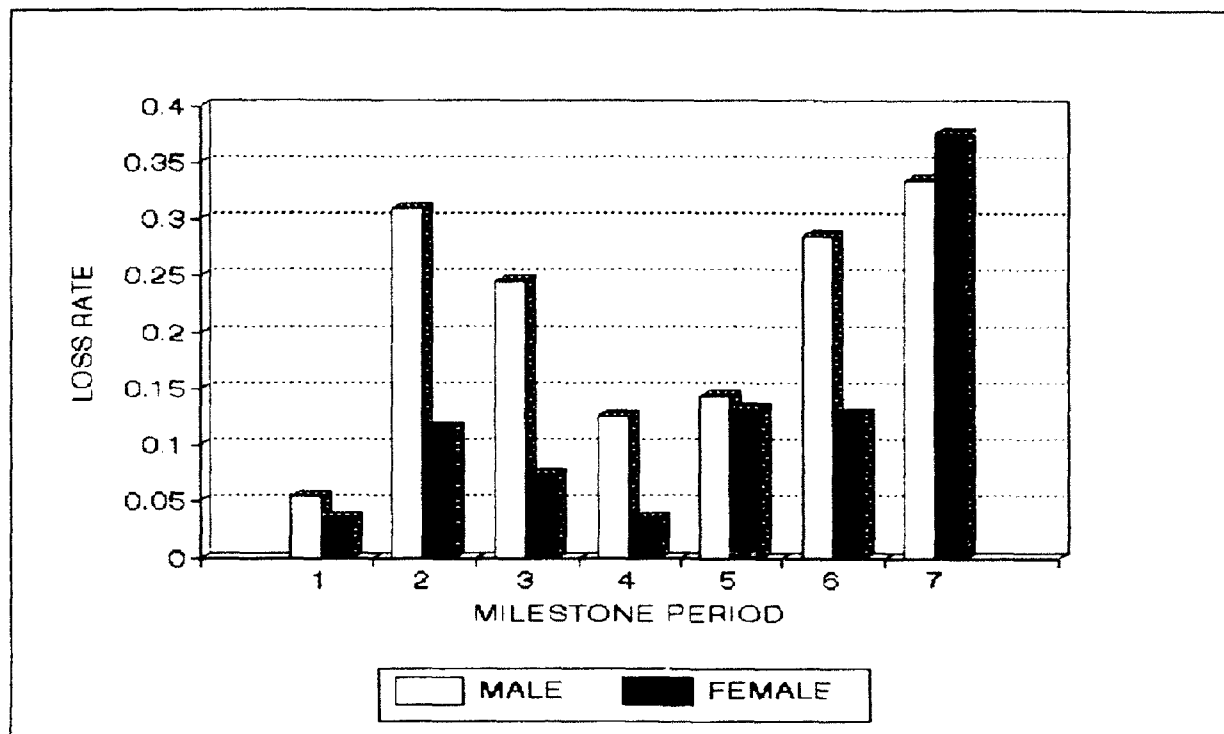


**Figure 39** Promotion Rates of GenURL Officers by Ethnic Group for Milestone Period 4

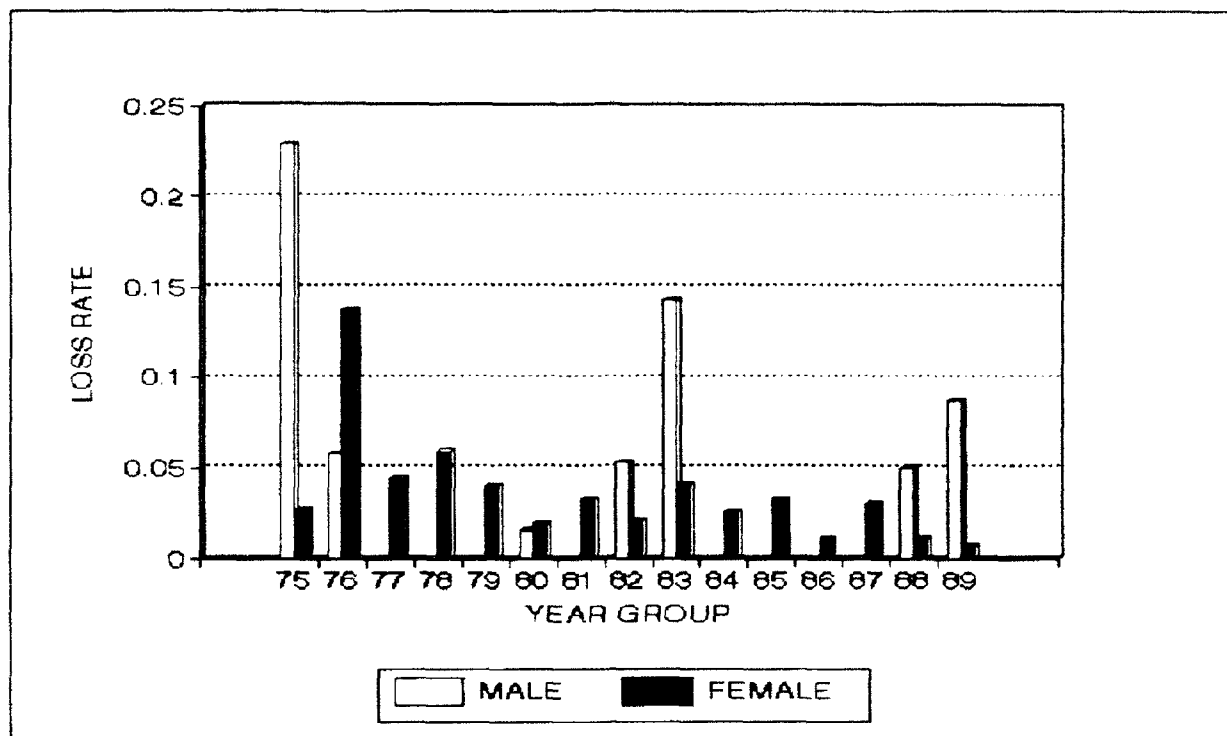


**Figure 40** Loss Rates of GenURL Officers by Gender by Year of Service Averaged Across Year Groups

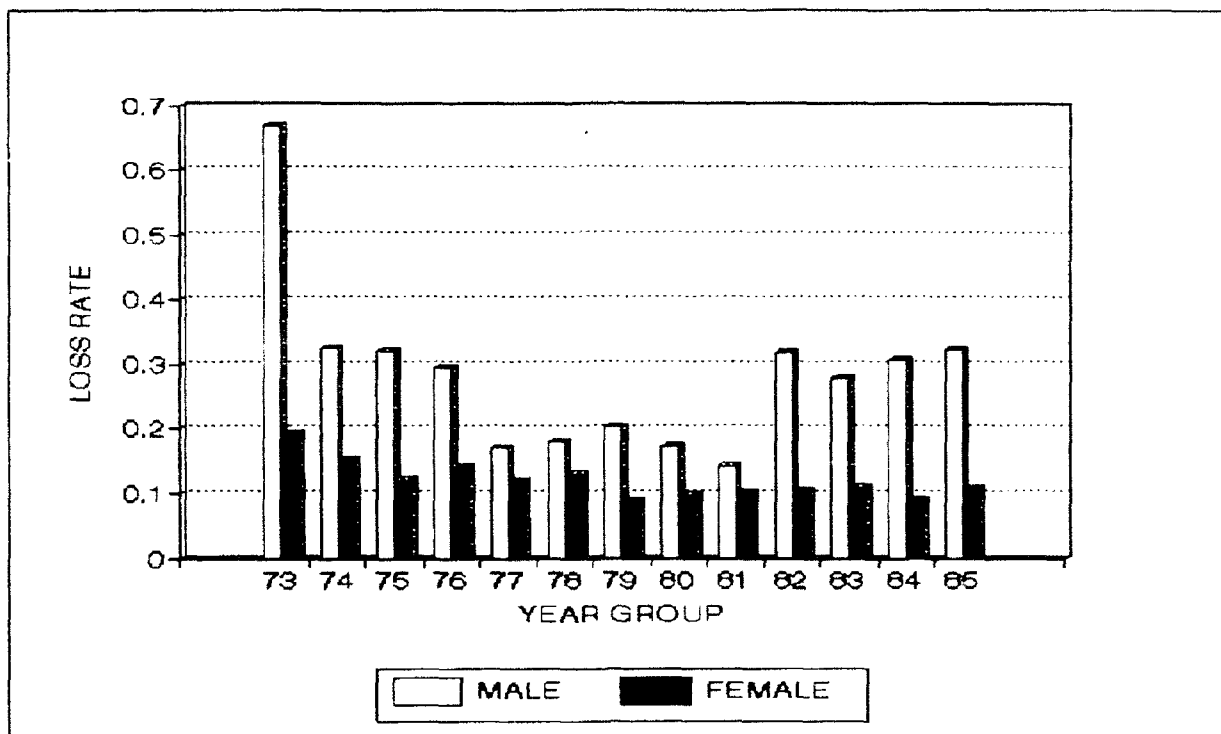




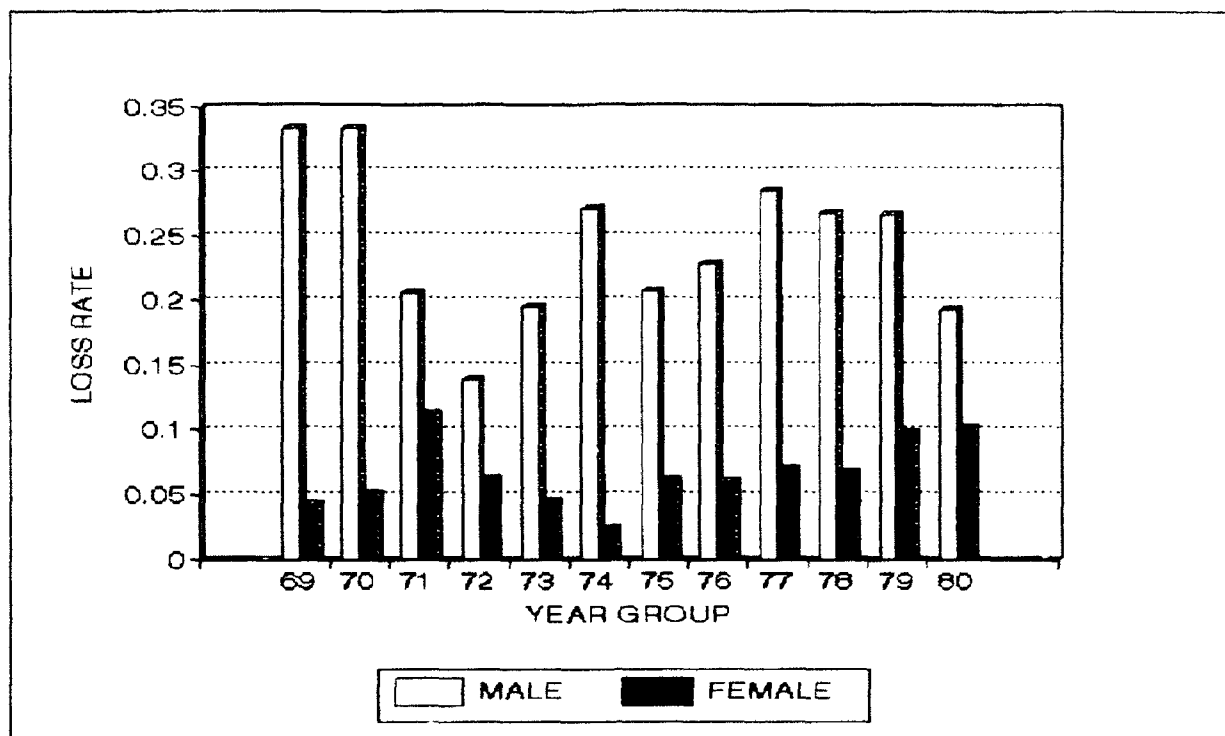
**Figure 41** Loss Rates for GenURL Officers by Gender by Milestone Period Averaged Across Year Groups



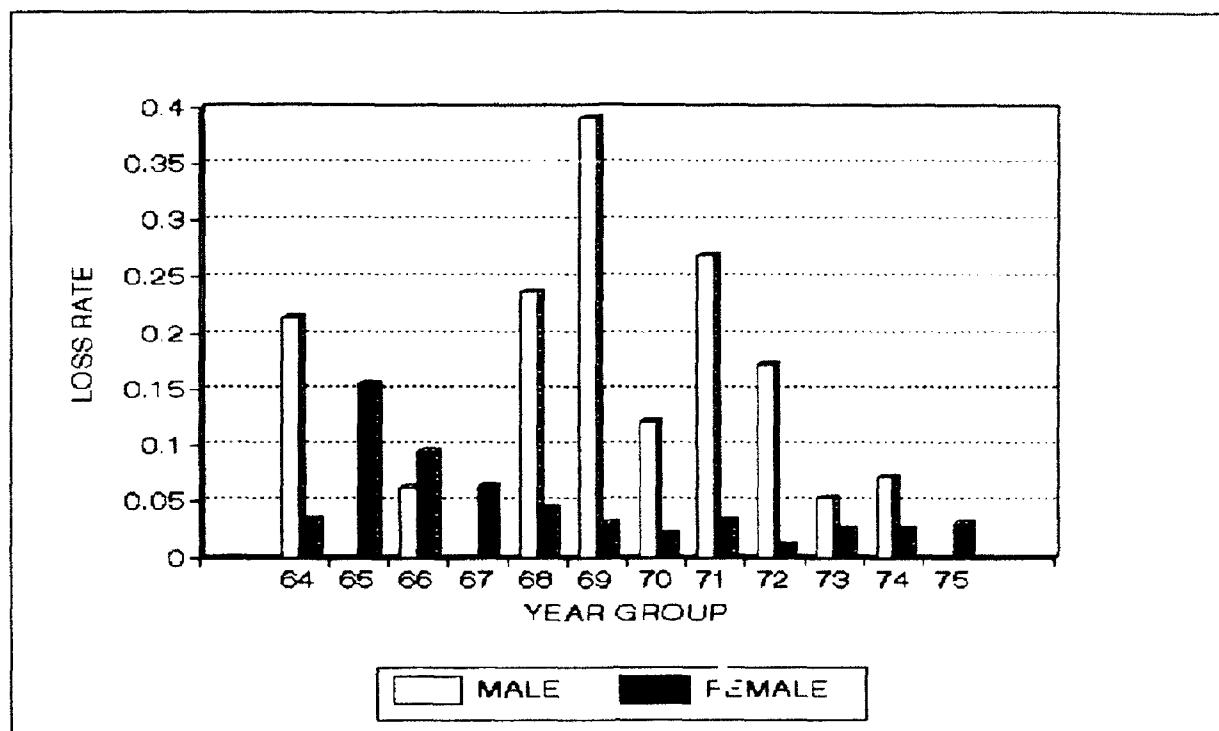
**Figure 42** Loss Rates of GenURL Officers by Gender for Milestone Period 1



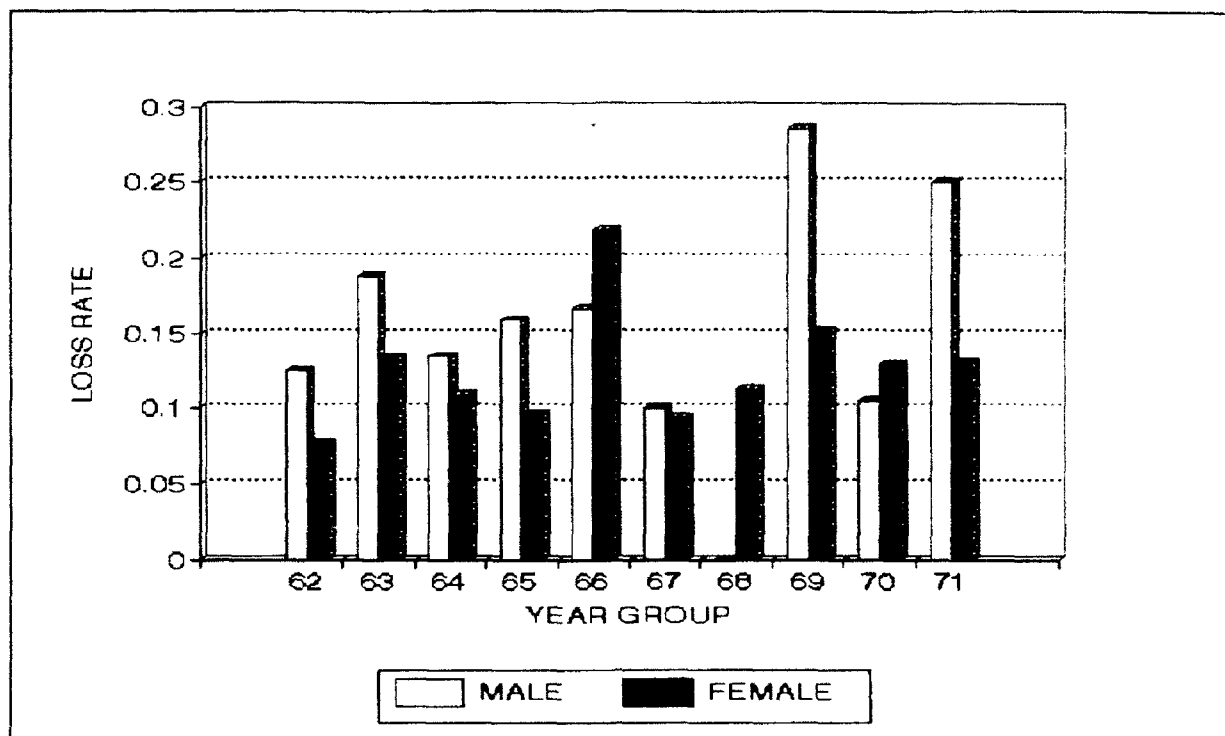
**Figure 43** Loss Rates of GenURL Officers by Gender for Milestone Period 2



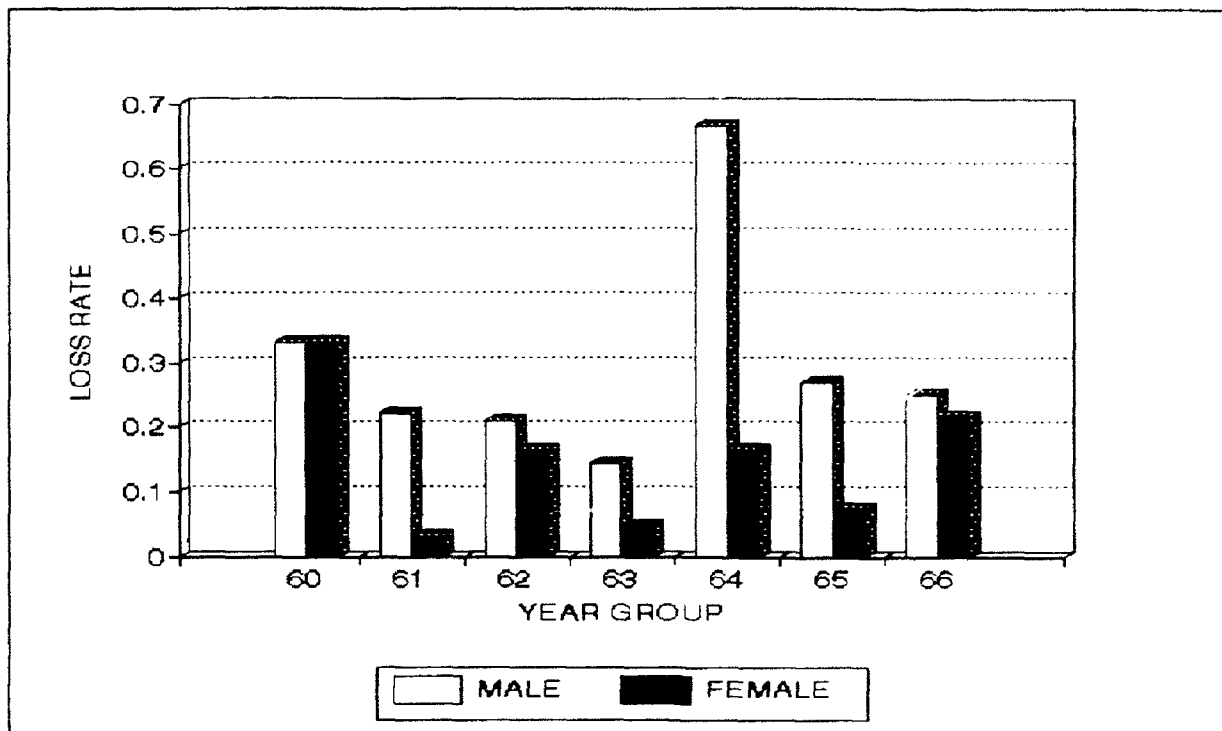
**Figure 44** Loss Rates of GenURL Officers by Gender for Milestone Period 3



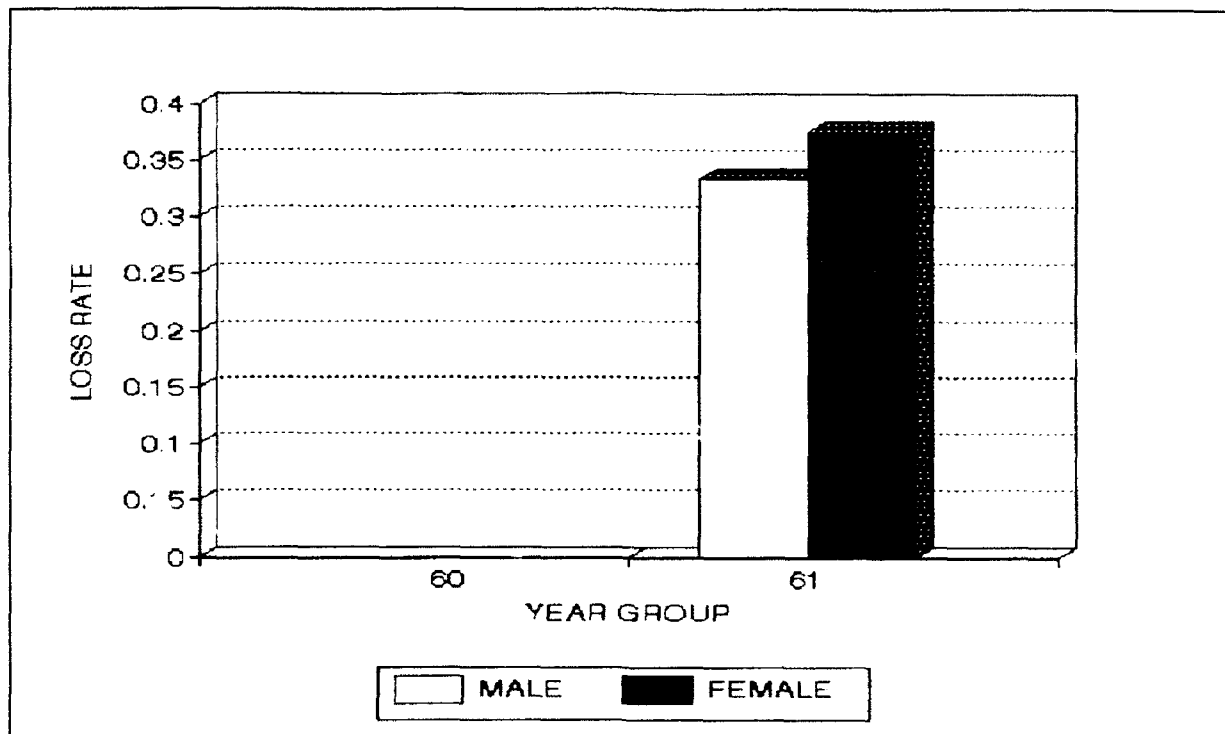
**Figure 45** Loss Rates of GenURL Officers by Gender for Milestone Period 4



**Figure 46** Loss Rates of GenURL Officers by Gender for Milestone Period 5

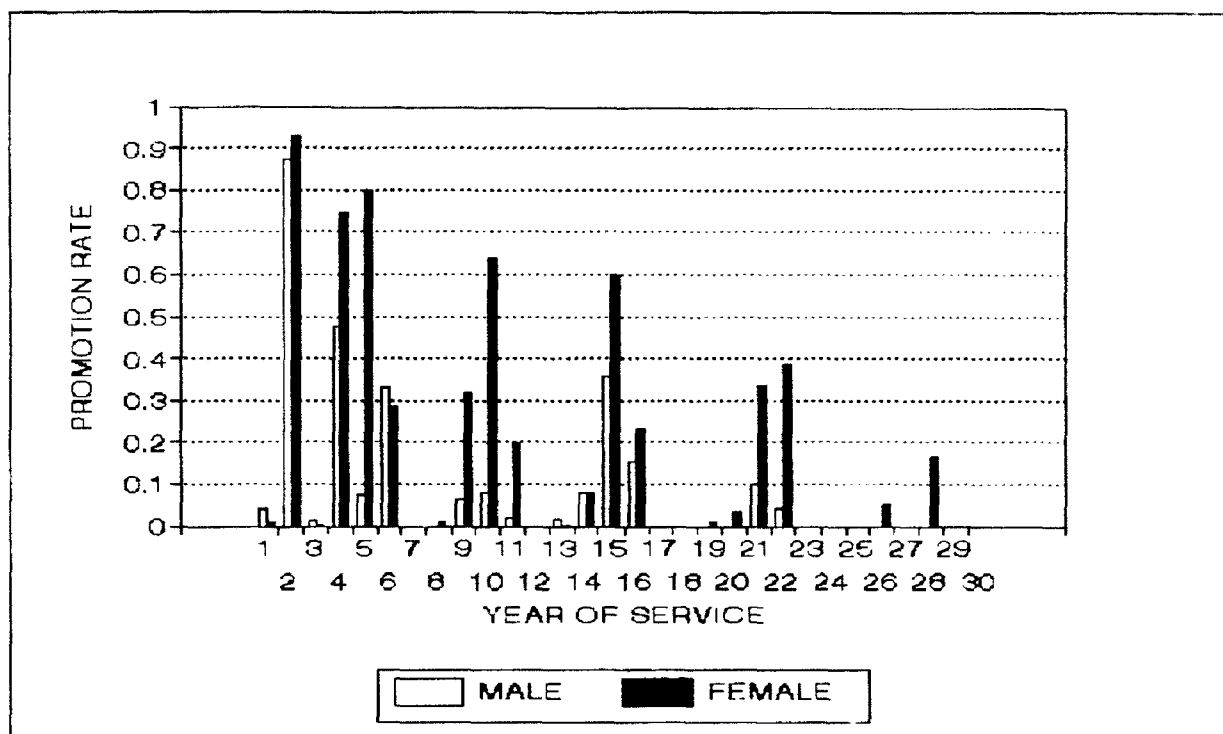


**Figure 47** Loss Rates of GenURL Officers by Gender for Milestone Period 6

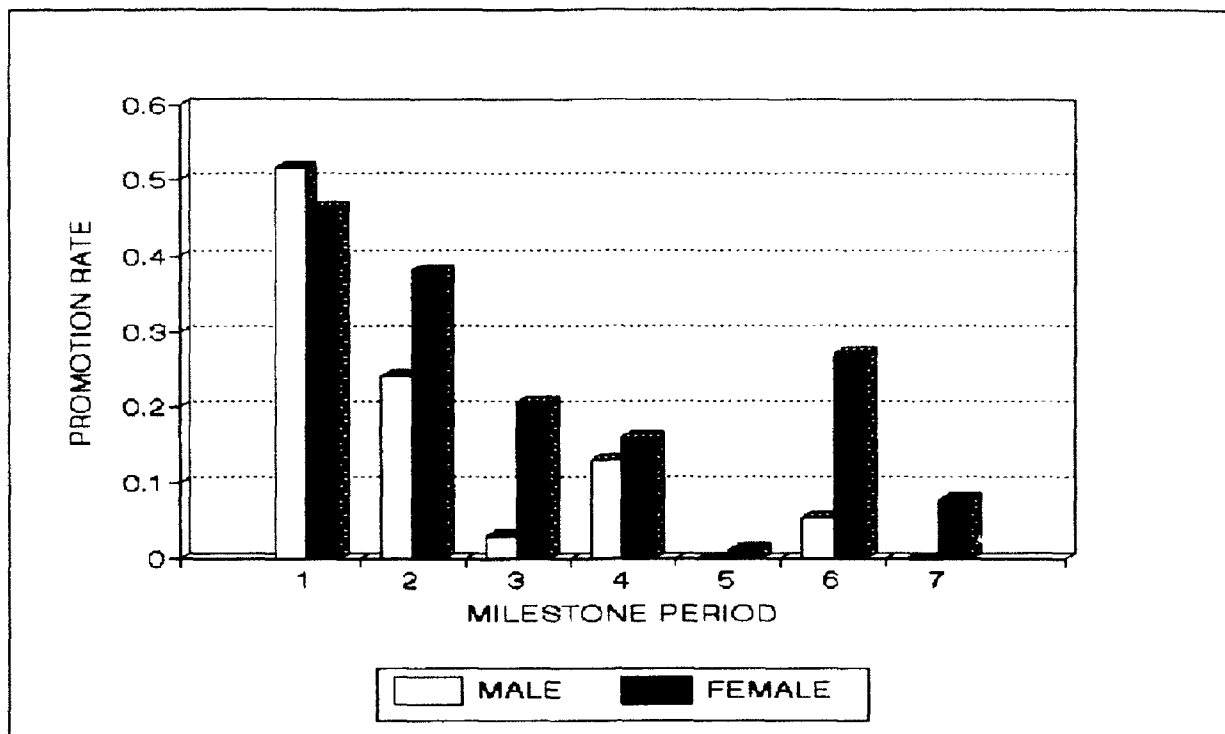


**Figure 48** Loss Rates of GenURL Officers by Gender for Milestone Period 7

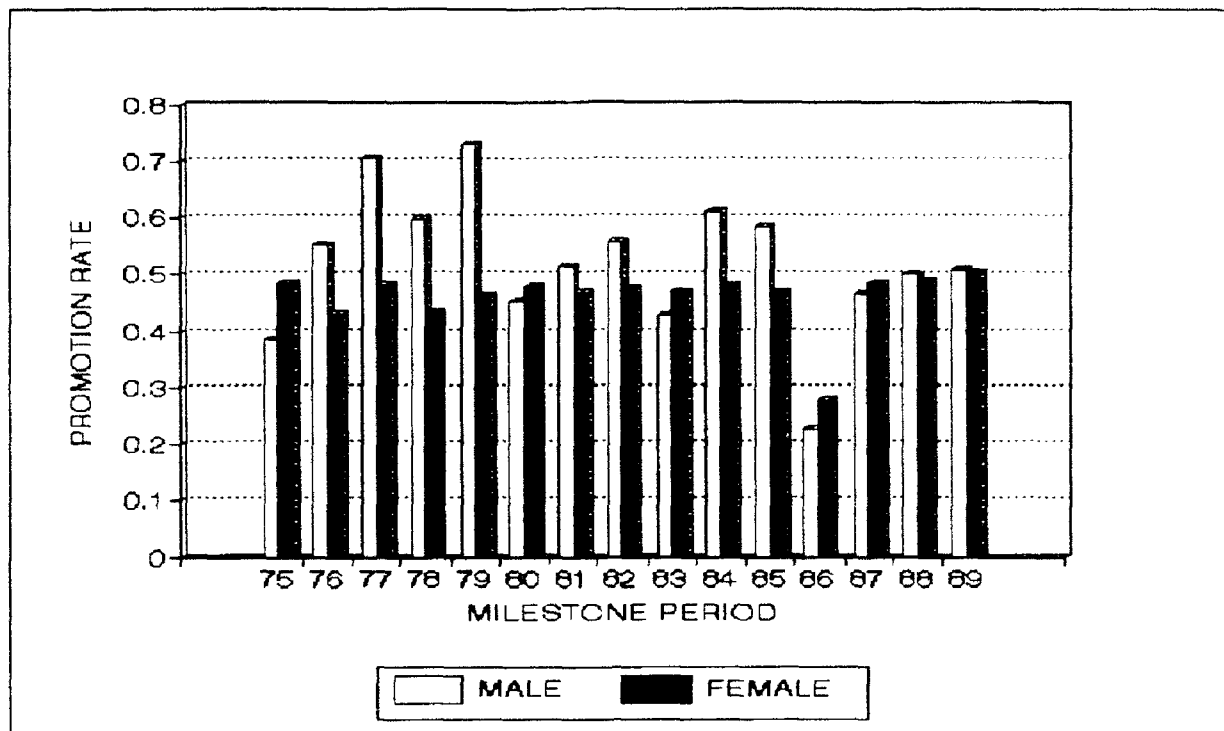




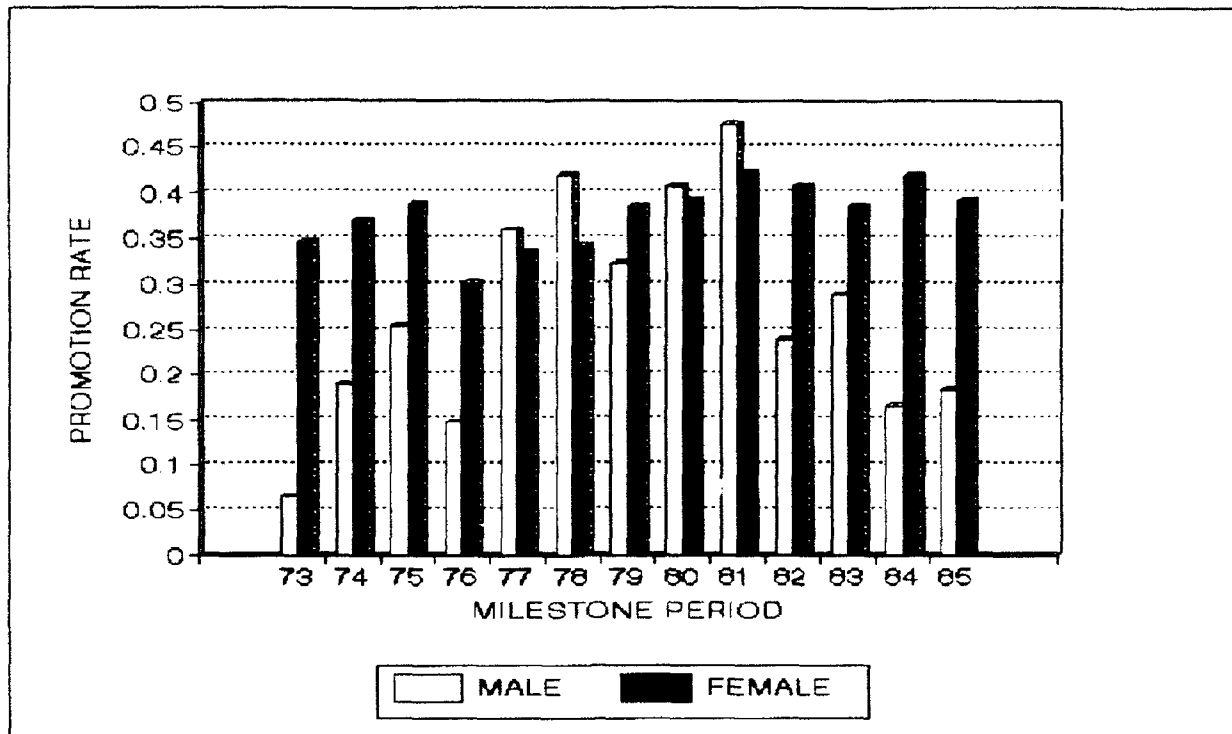
**Figure 49** Promotion Rates of GenURL Officers by Gender by Year of Service Averaged Across Year Groups



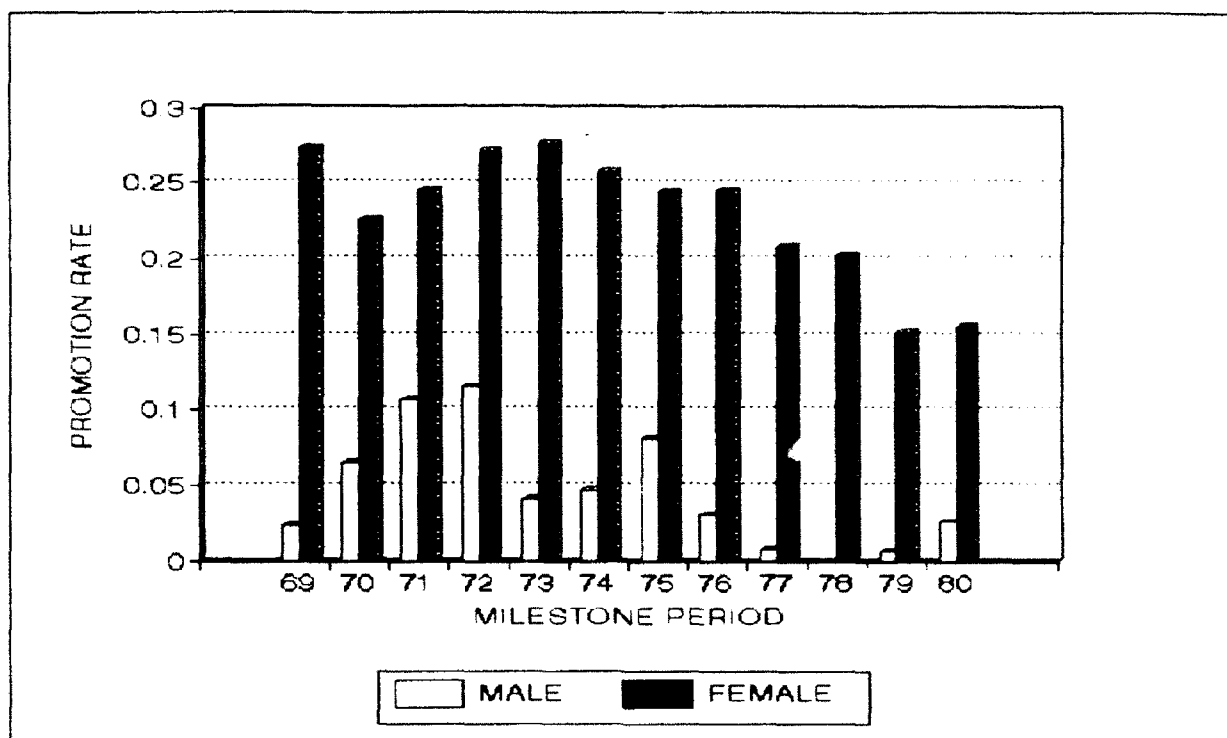
**Figure 50** Promotion Rates of GenURL Officers by Gender by Milestone Period Averaged Across Year Groups



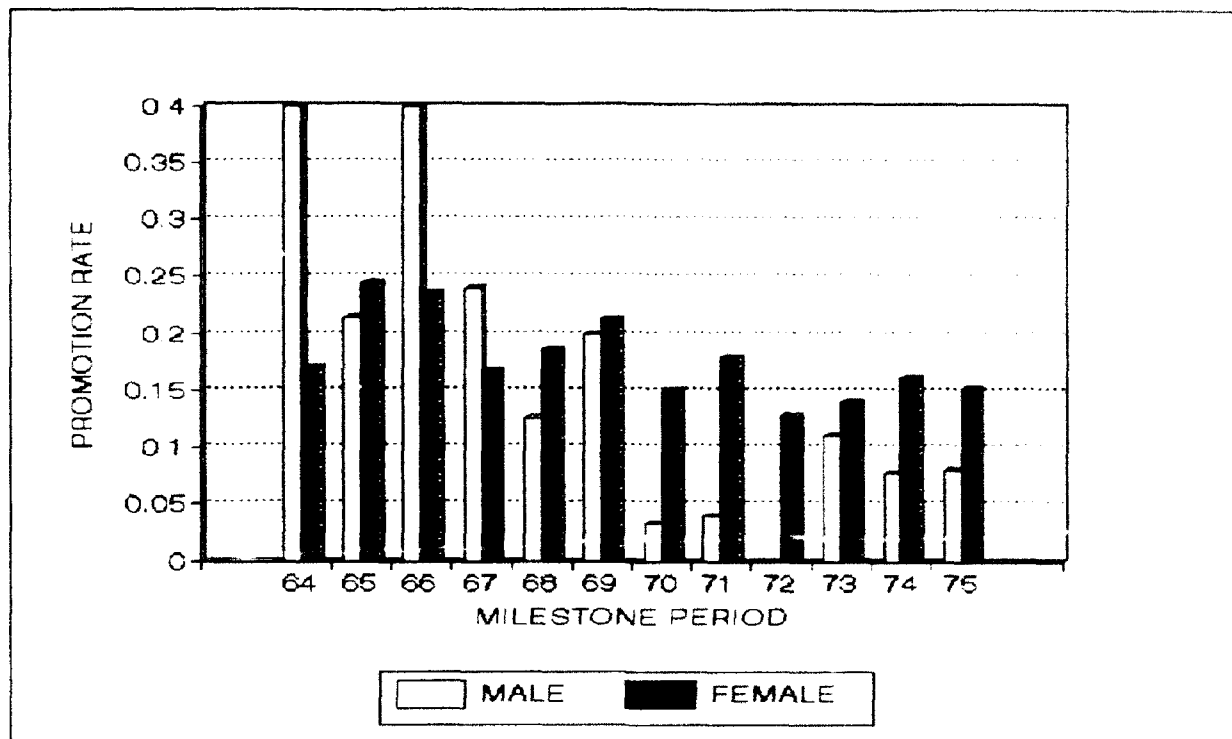
**Figure 51** Promotion Rates of GenURL Officers by Gender for Milestone Period 1



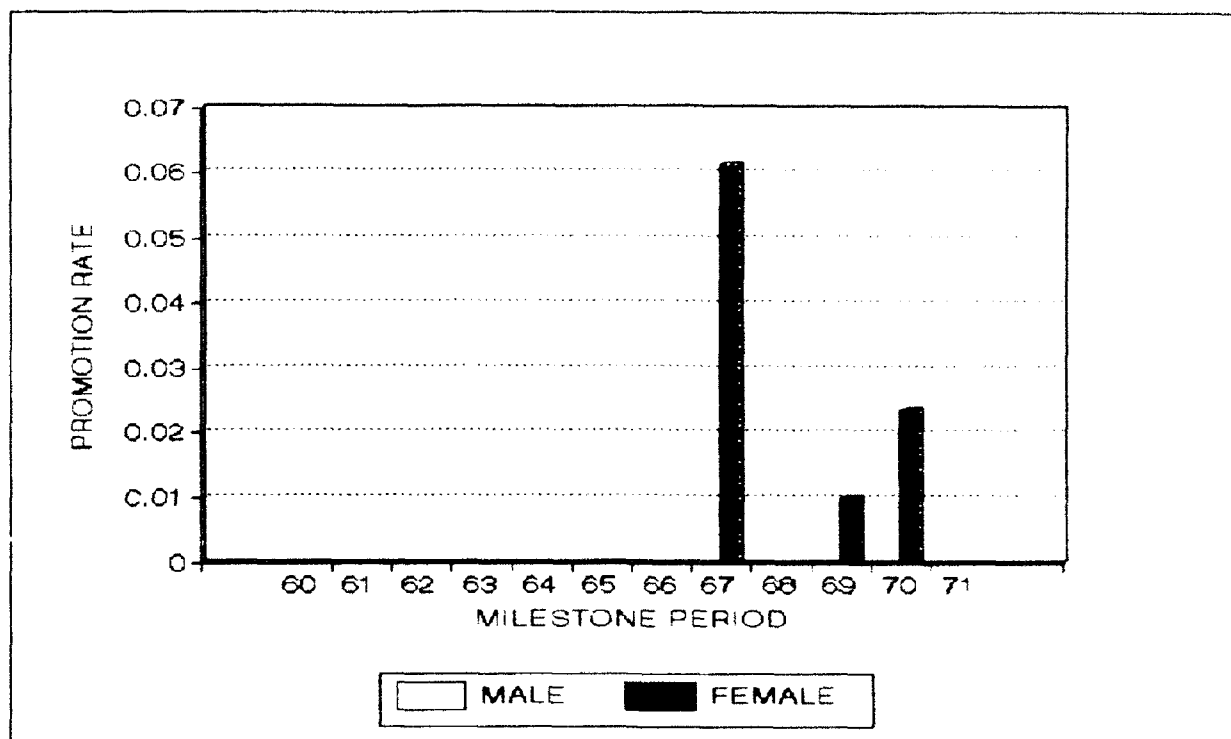
**Figure 52** Promotion Rates of GenURL Officers by Gender for Milestone Period 2



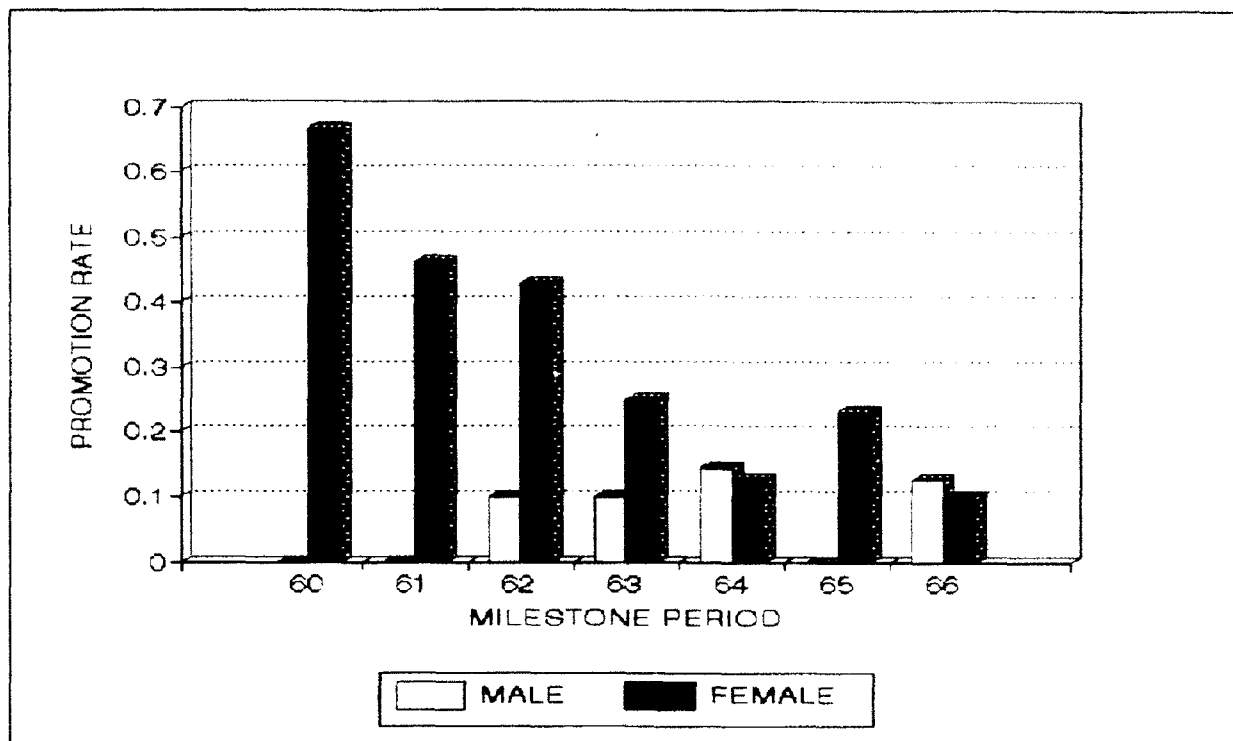
**Figure 53** Promotion Rates of GenURL Officers by Gender for Milestone Period 3



**Figure 54** Promotion Rates of GenURL Officers by Gender for Milestone Period 4



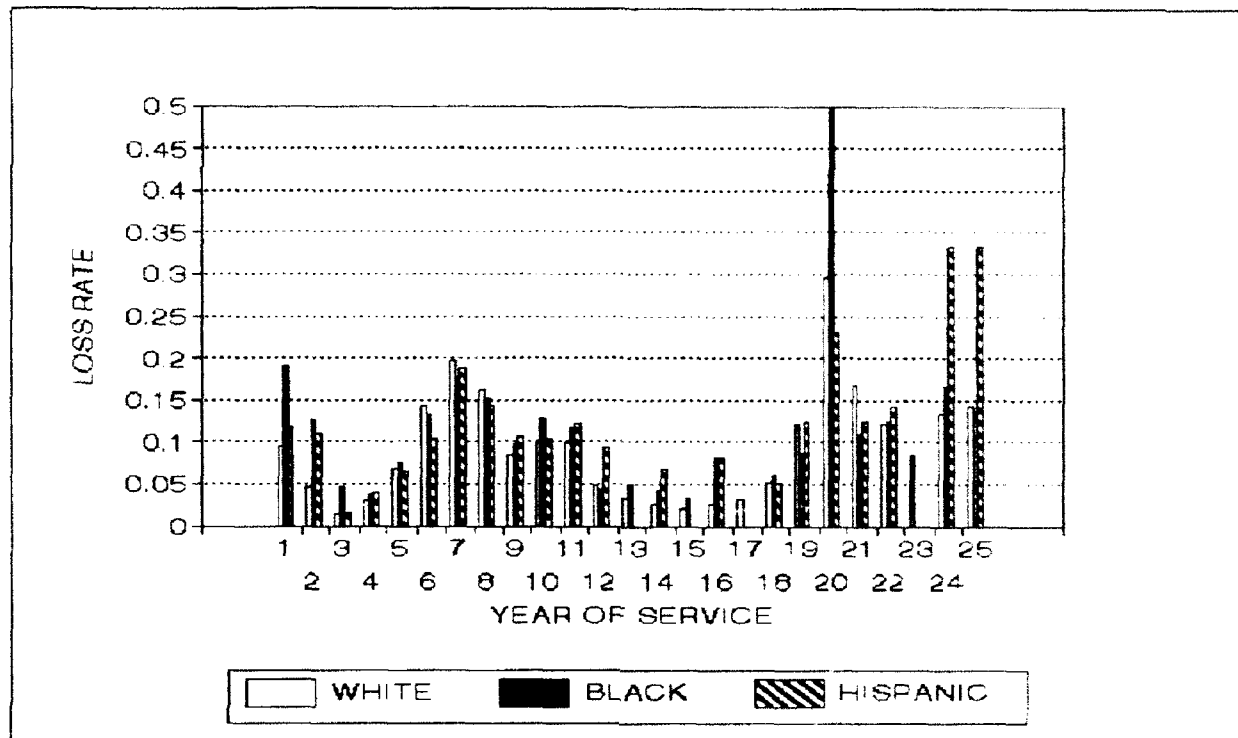
**Figure 55** Promotion Rates of GenURL Officers by Gender for Milestone Period 5



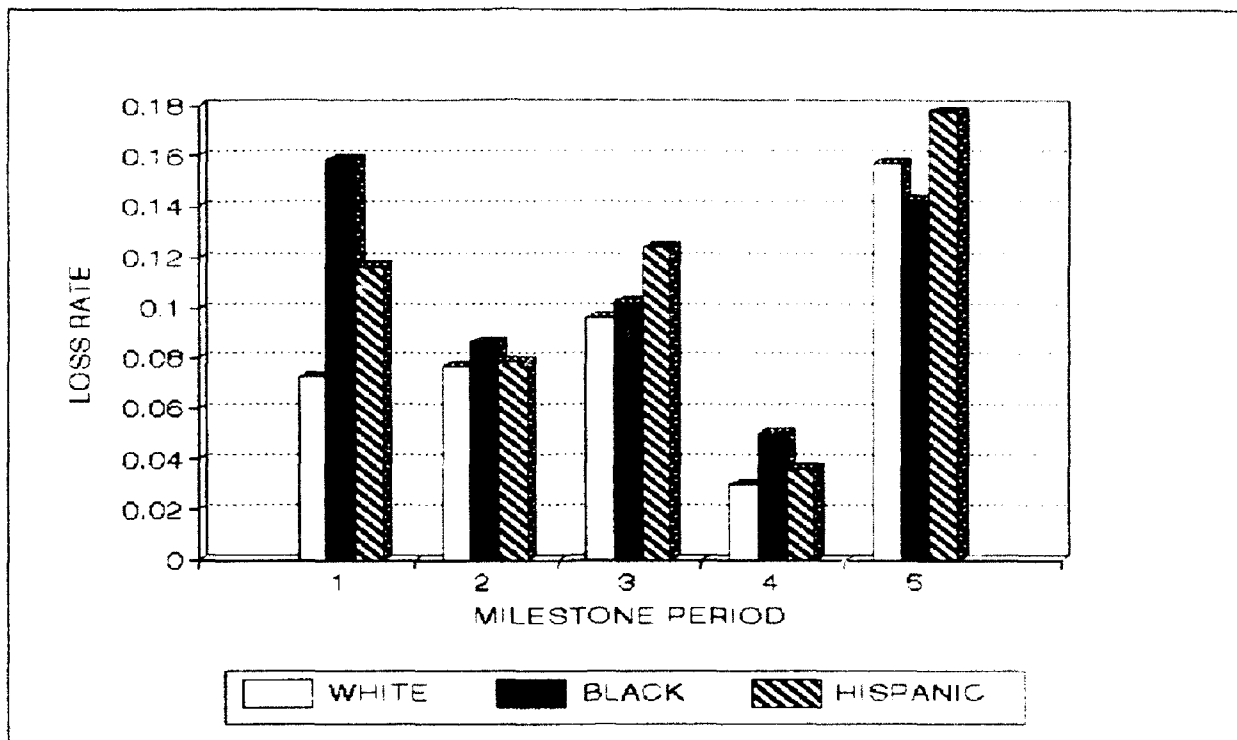
**Figure 56** Promotion Rates of GenURL Officers by Gender for Milestone Period 6



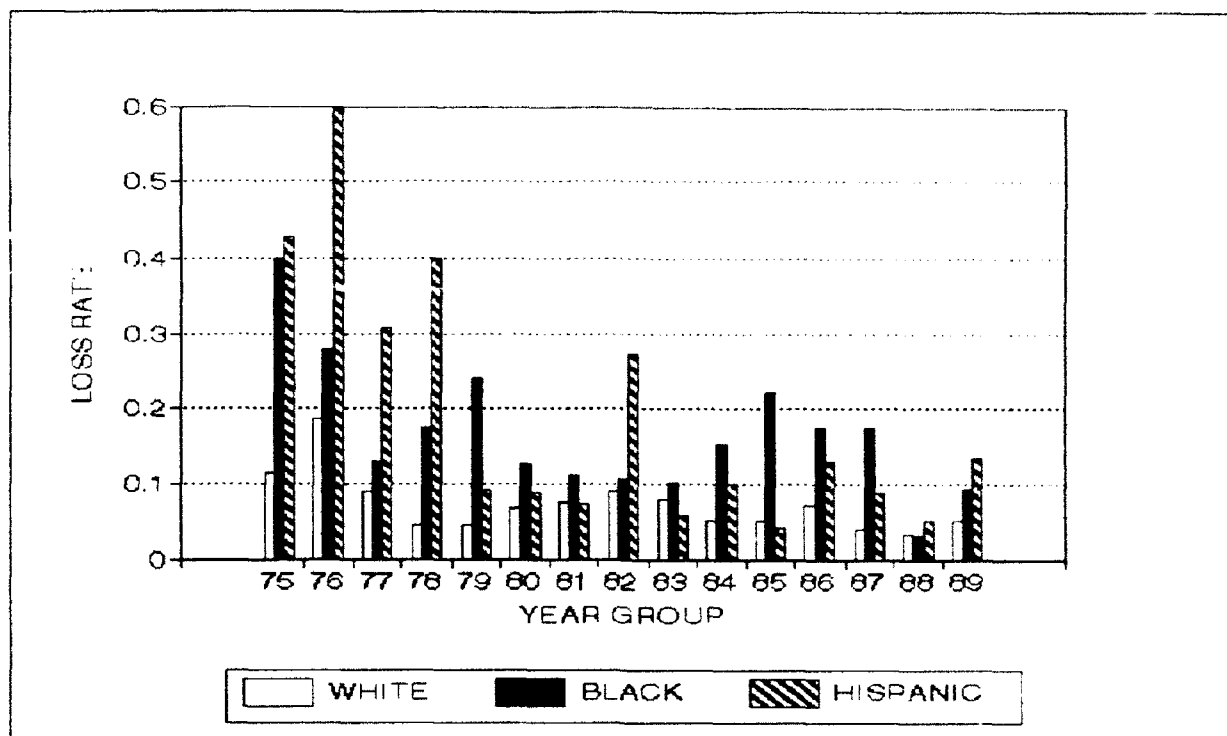
APPENDIX P - SUPPORTING GRAPHS FOR THE AVIATION WARFARE COMMUNITY



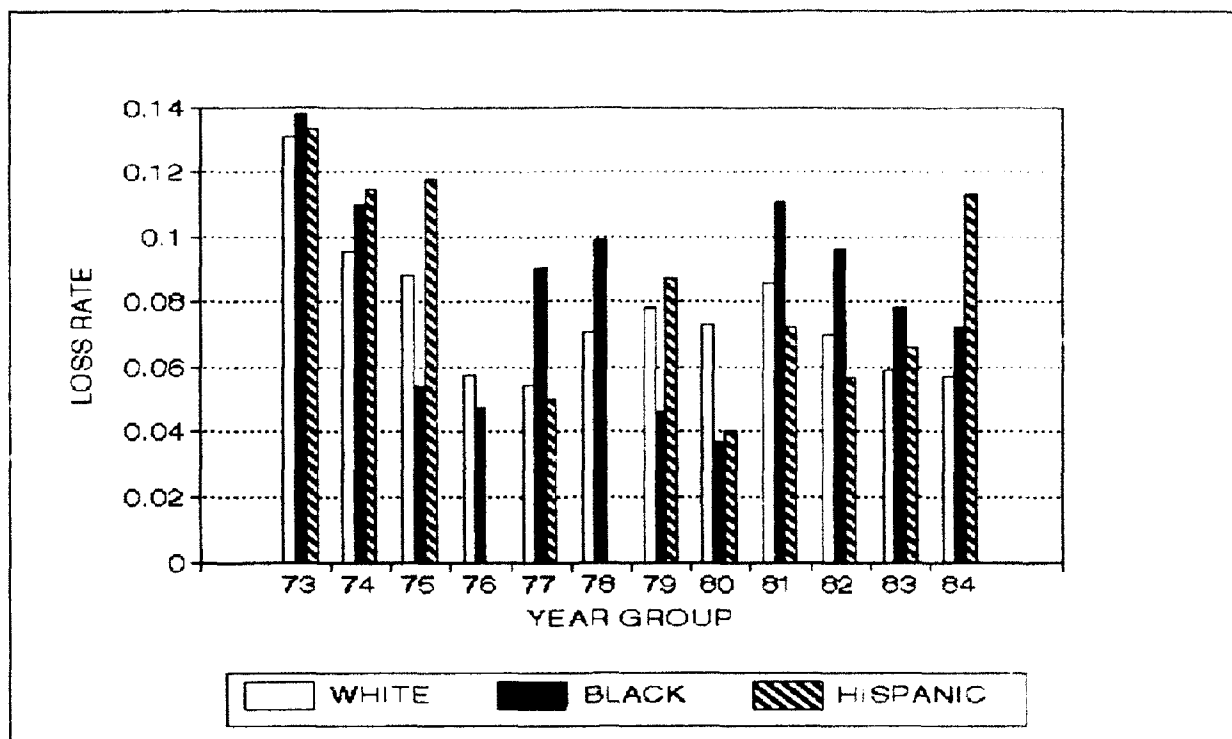
**Figure 57** Loss Rates of Aviation Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups



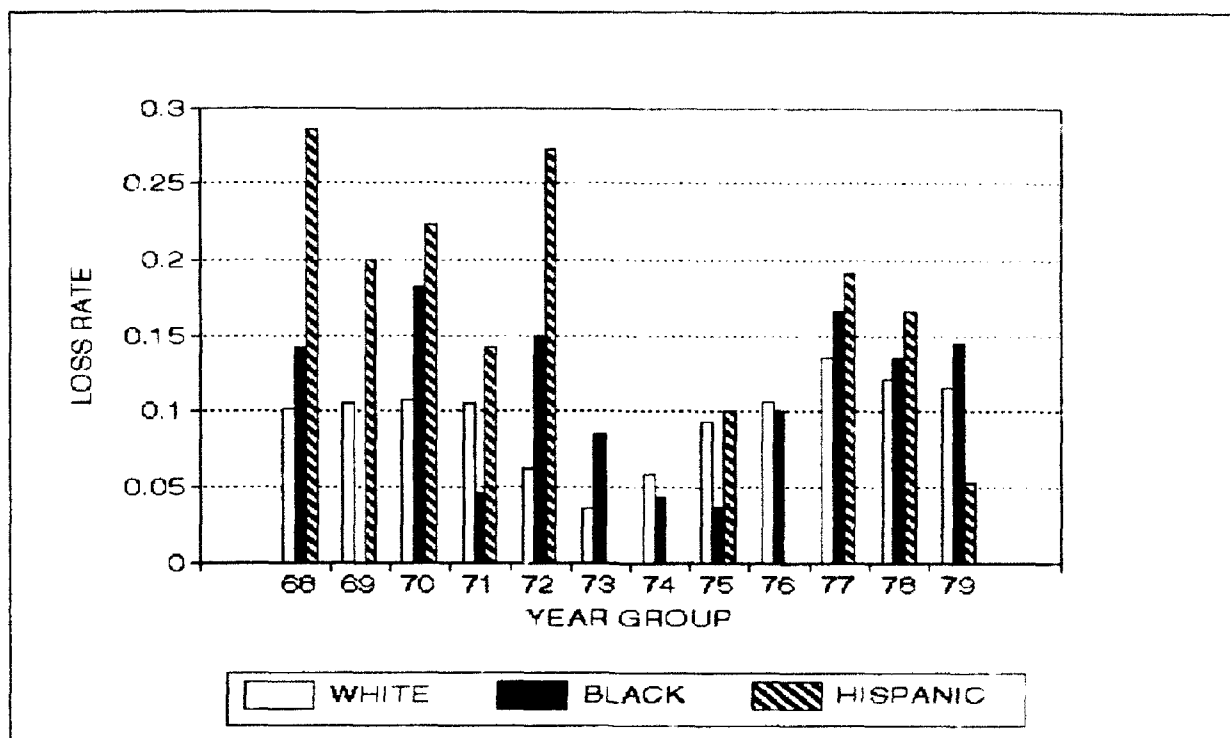
**Figure 58** Loss Rates of Aviation Warfare Officers by Ethnic Group by Milestone Period Averaged Across Year Groups



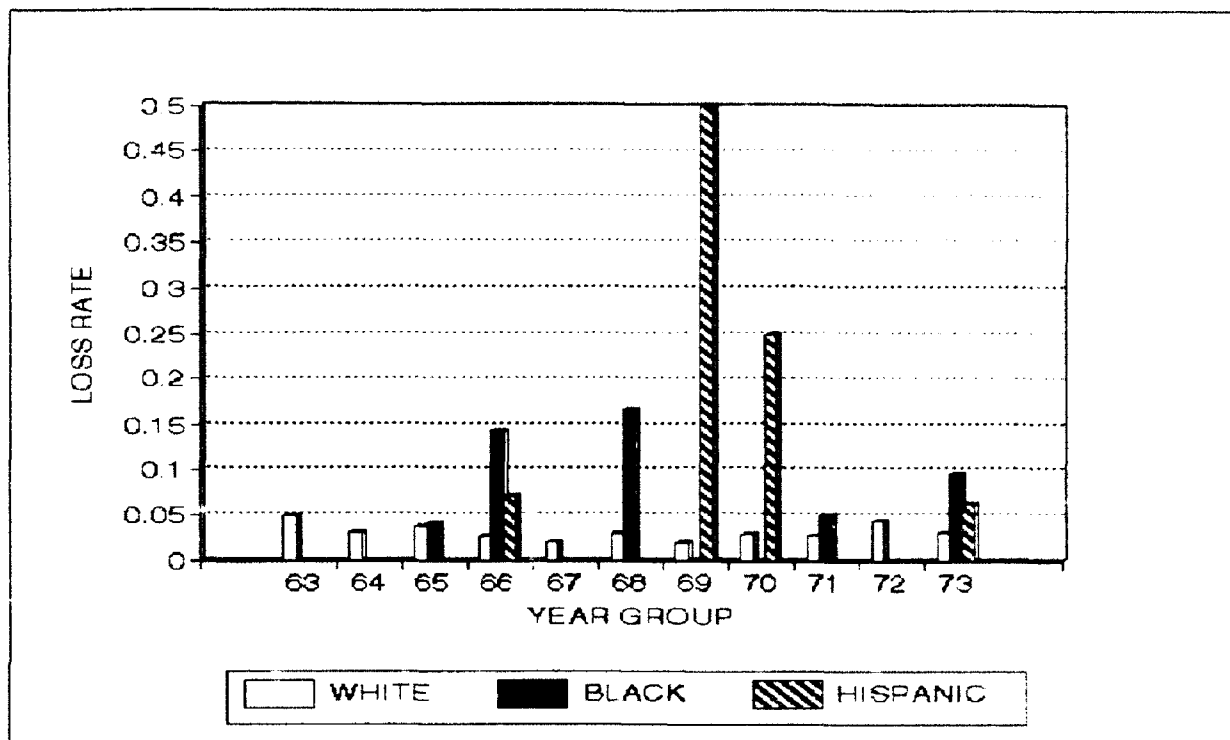
**Figure 59** Loss Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 1



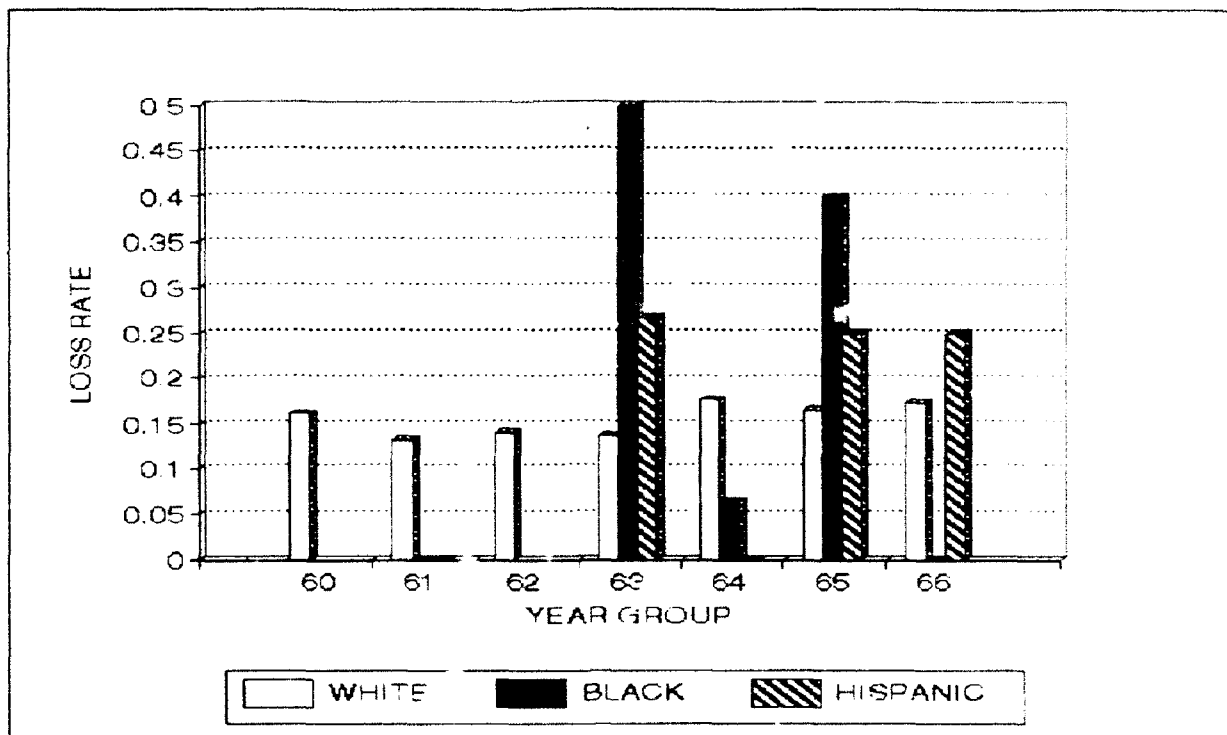
**Figure 60** Loss Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 2



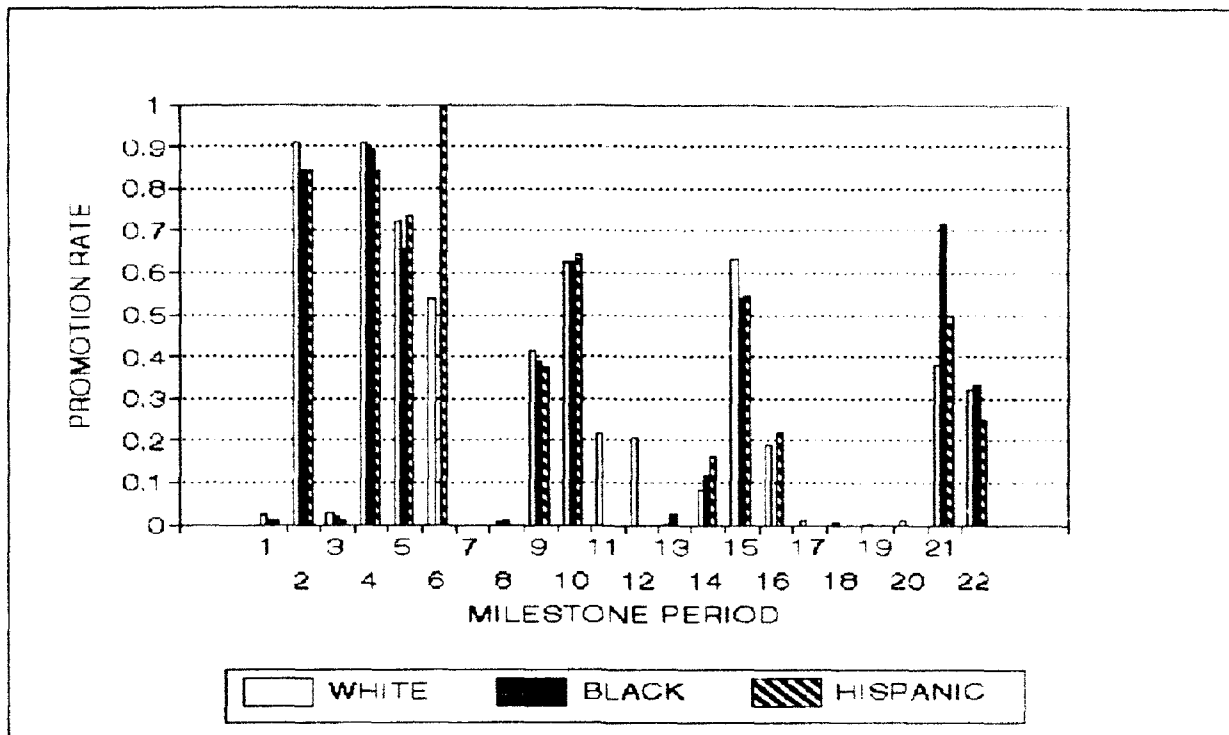
**Figure 61** Loss Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 3



**Figure 62** Loss Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 4

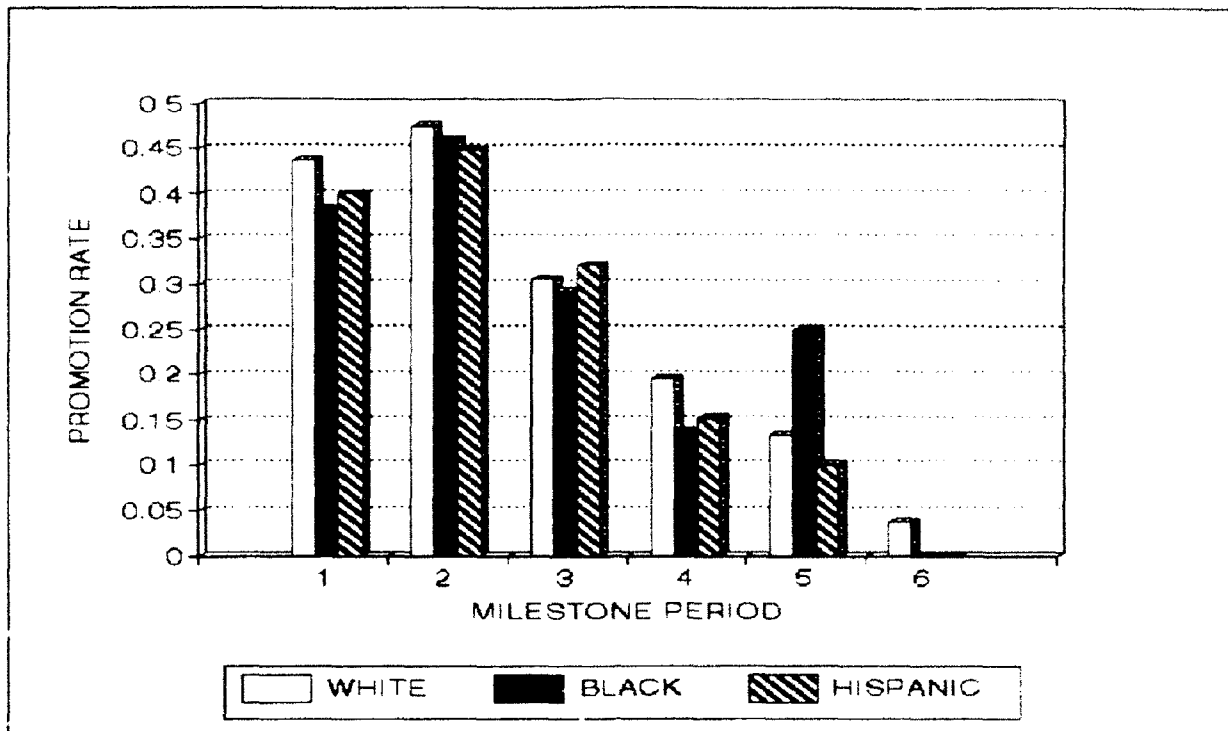


**Figure 63** Loss Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 5

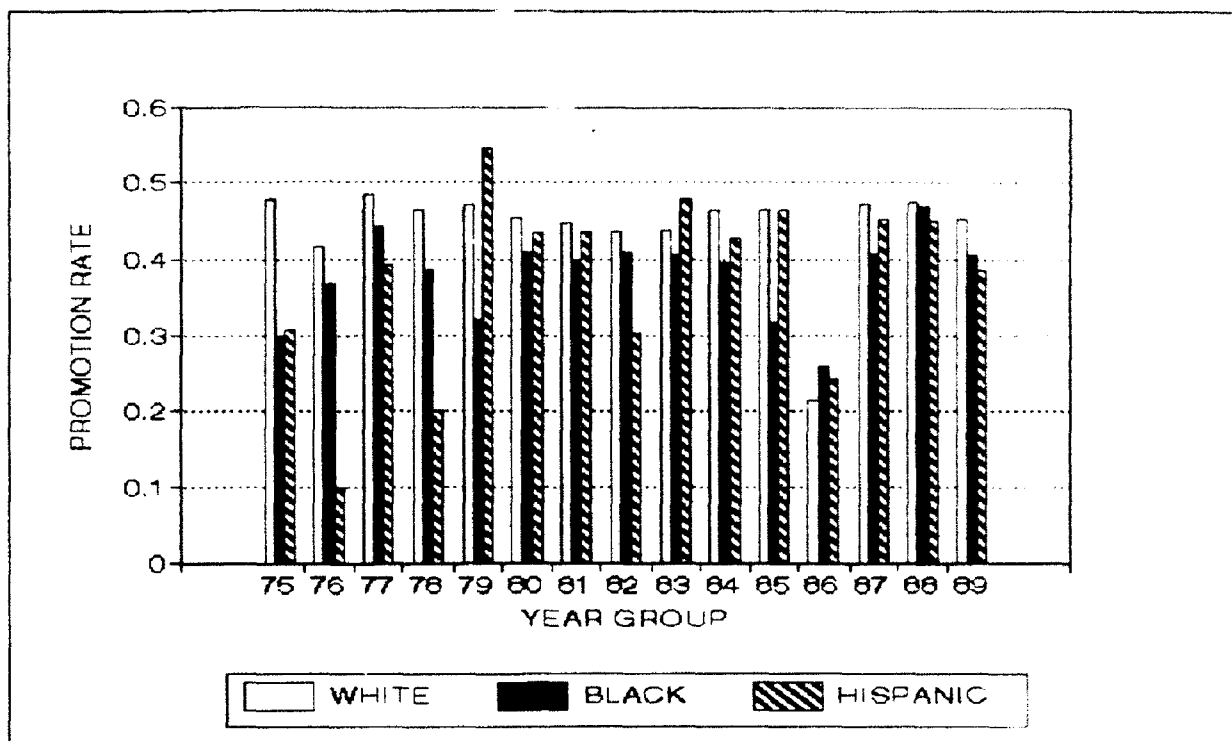


**Figure 64** Promotion Rates of Aviation Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups

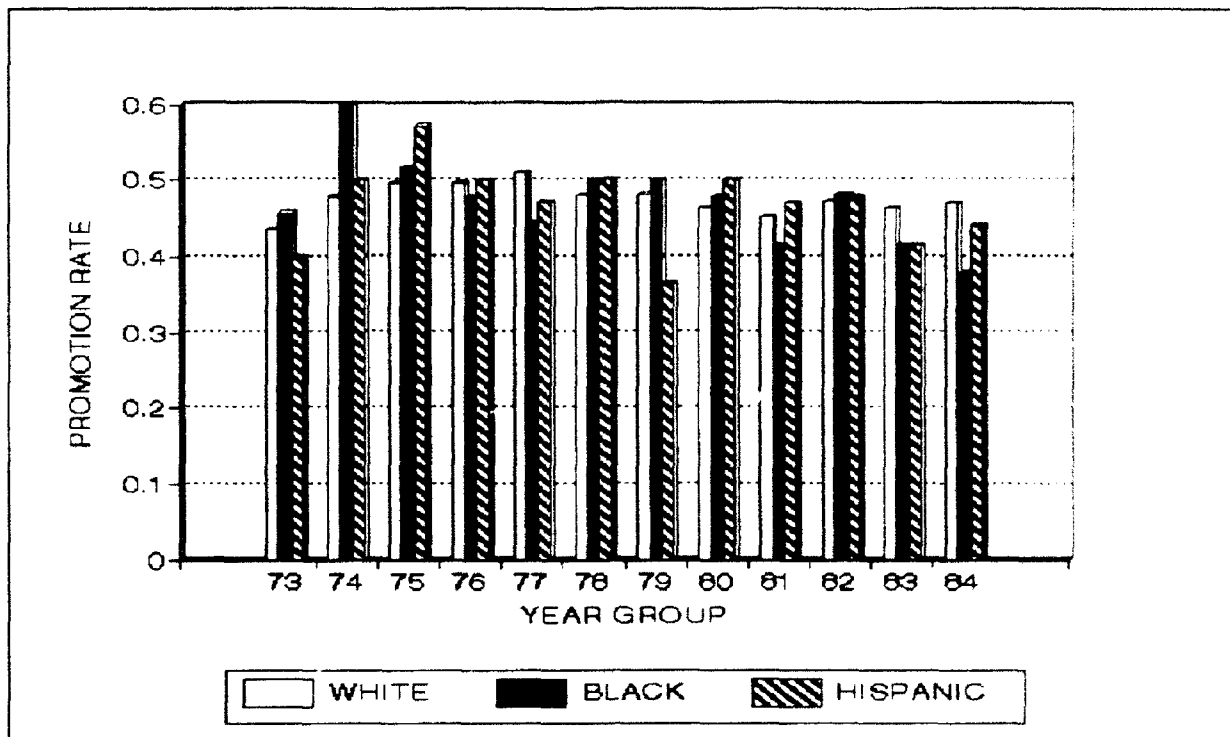




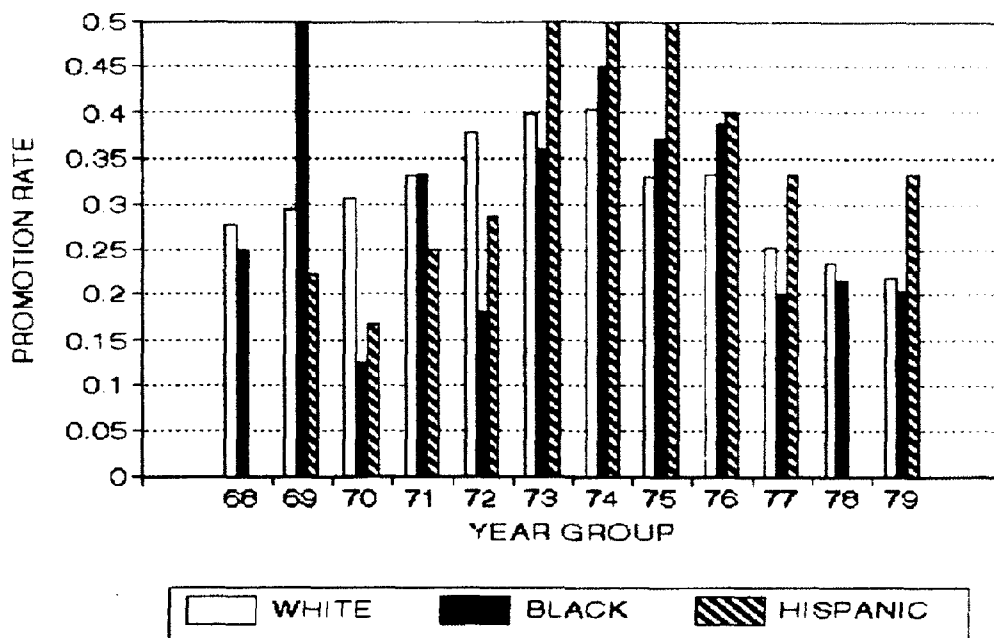
**Figure 65** Promotion Rates of Aviation Warfare Officers by Ethnic Group by Milestone Period Averaged Across Year Groups



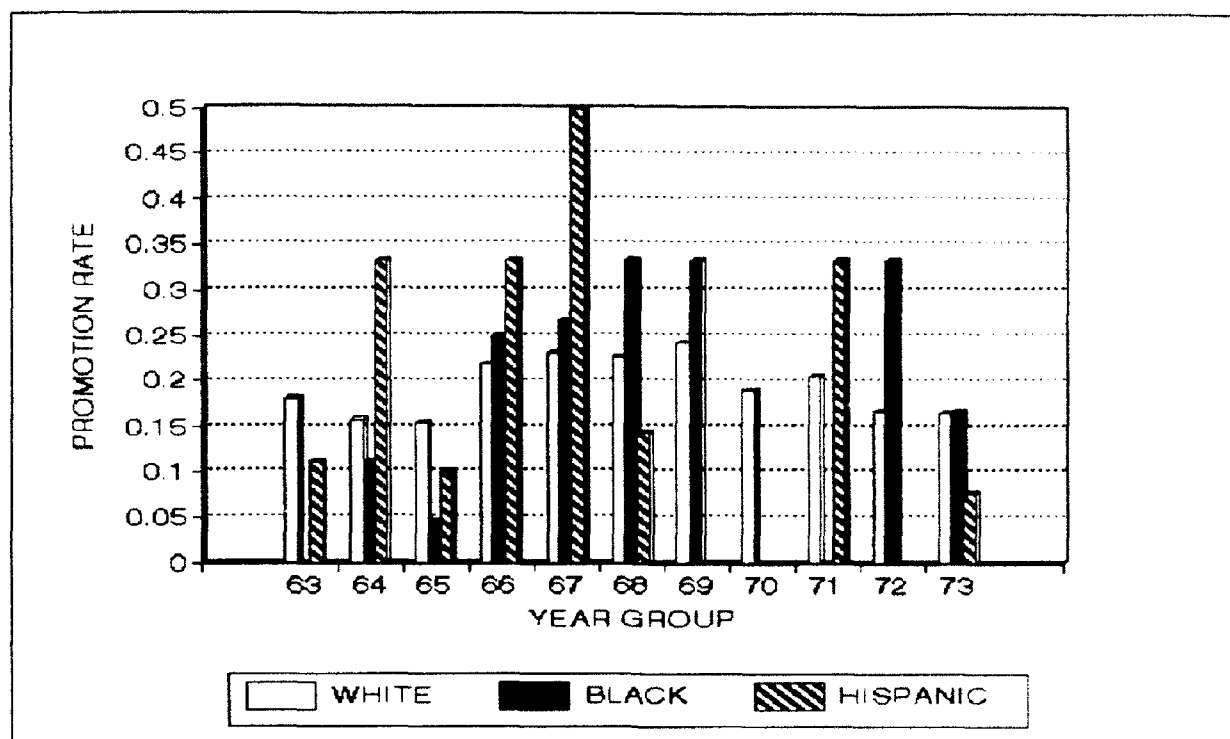
**Figure 66** Promotion Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 1



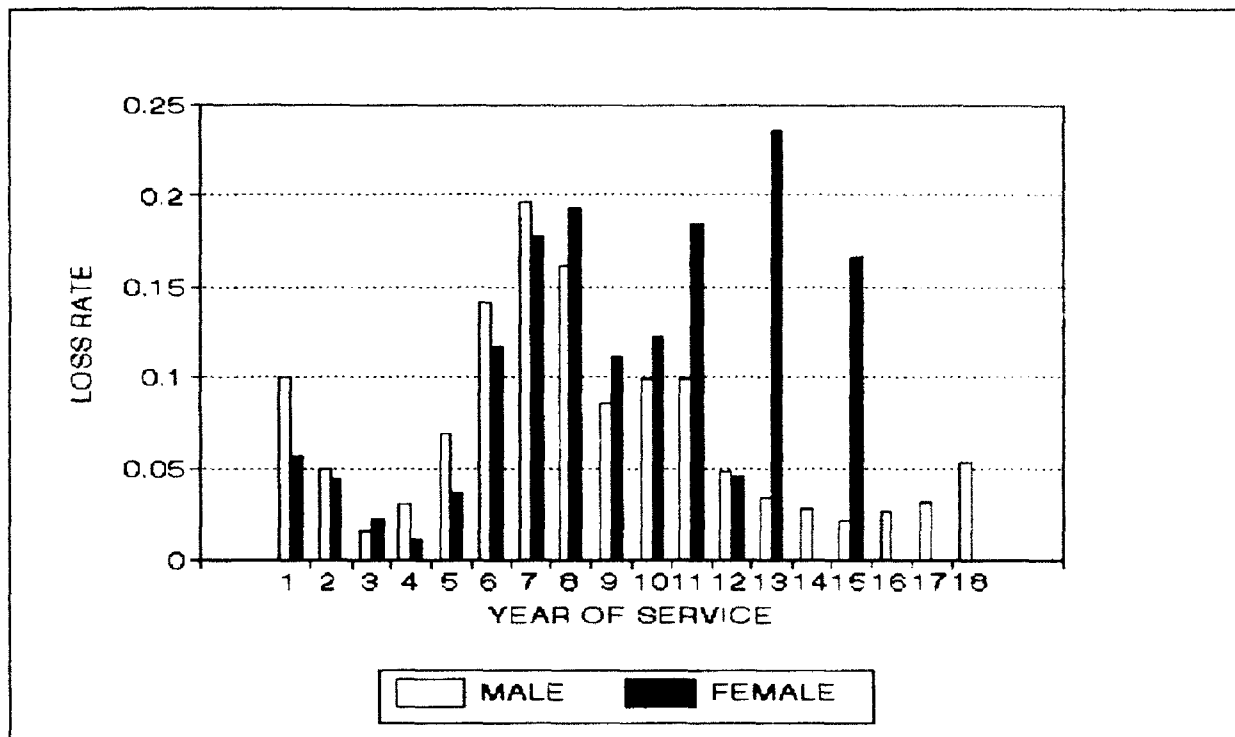
**Figure 67** Promotion Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 2



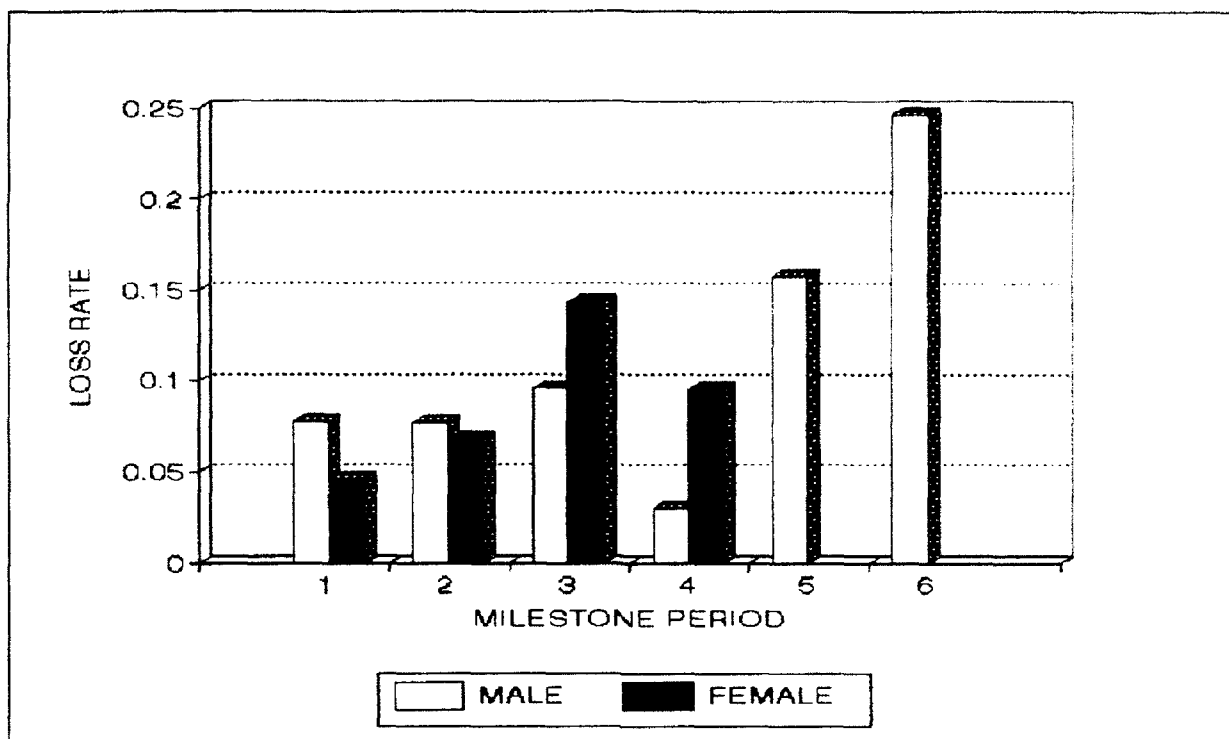
**Figure 68** Promotion Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 3



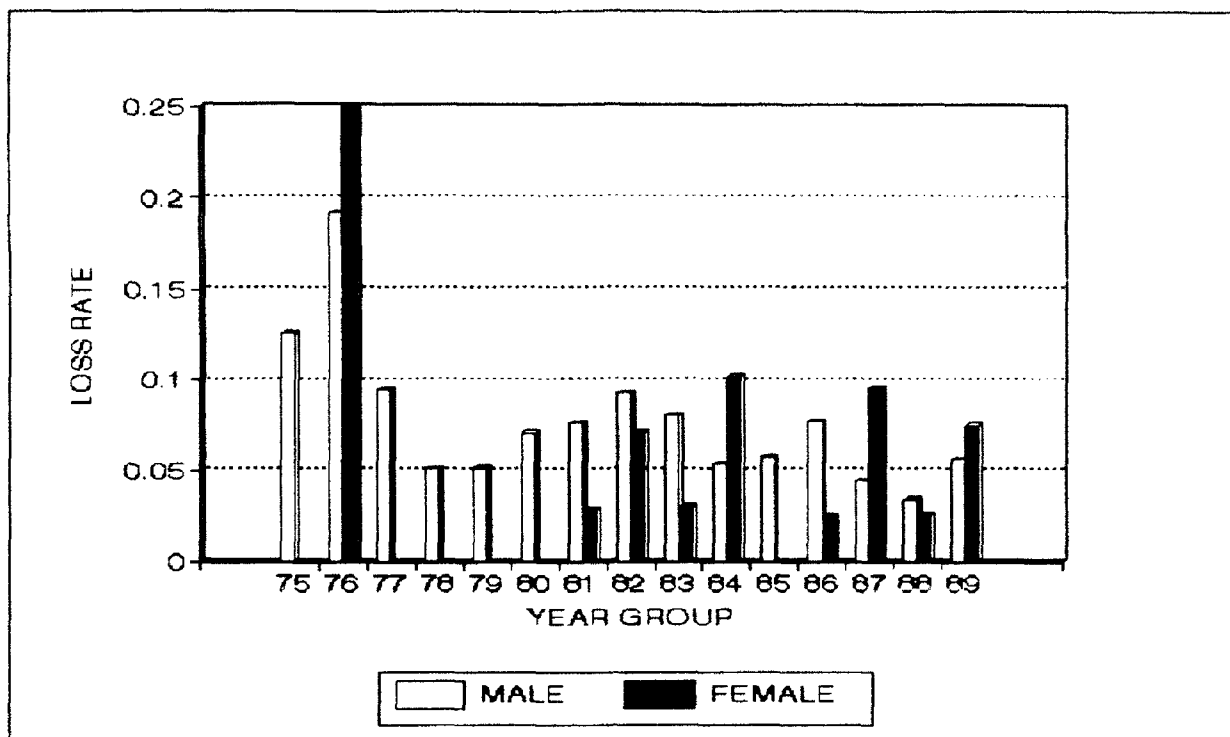
**Figure 69** Promotion Rates of Aviation Warfare Officers by Ethnic Group for Milestone Period 4



**Figure 70** Loss Rates of Aviation Warfare Officers by Gender by Year of Service Averaged Across Year Groups

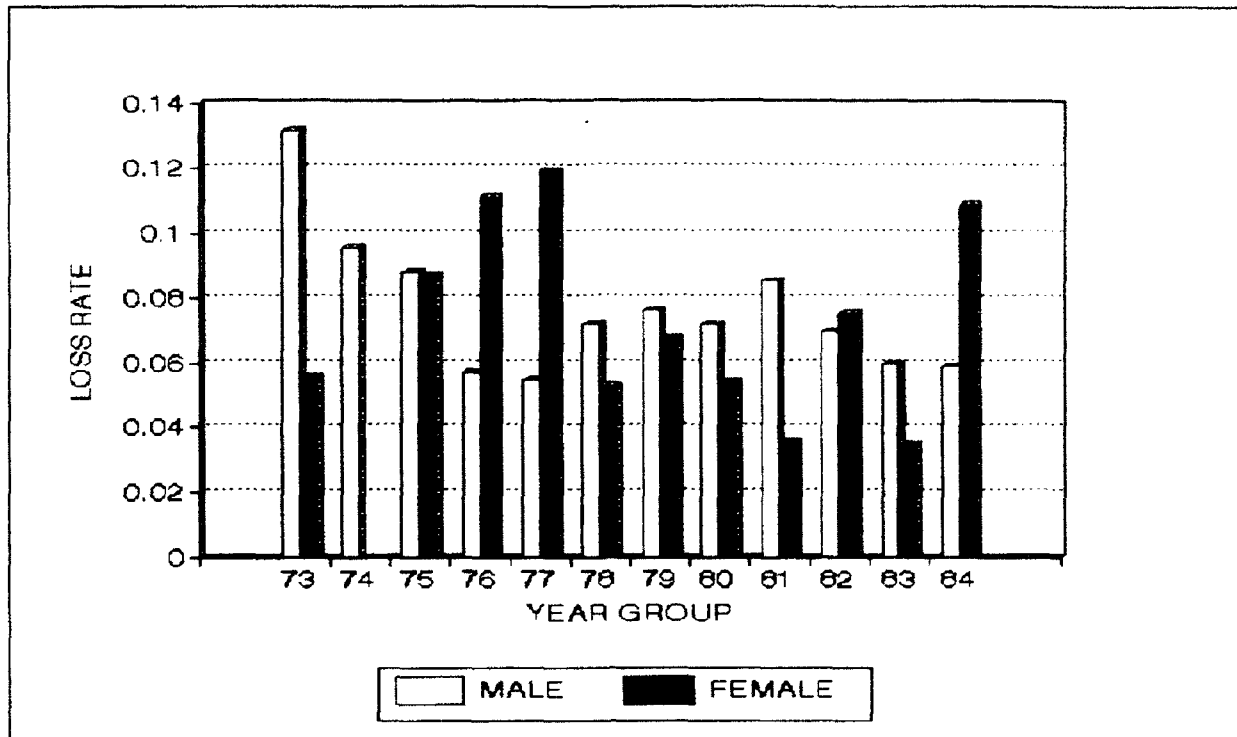


**Figure 71** Loss Rates of Aviation Warfare Officers by Gender by Milestone Period Averaged Across Year Groups

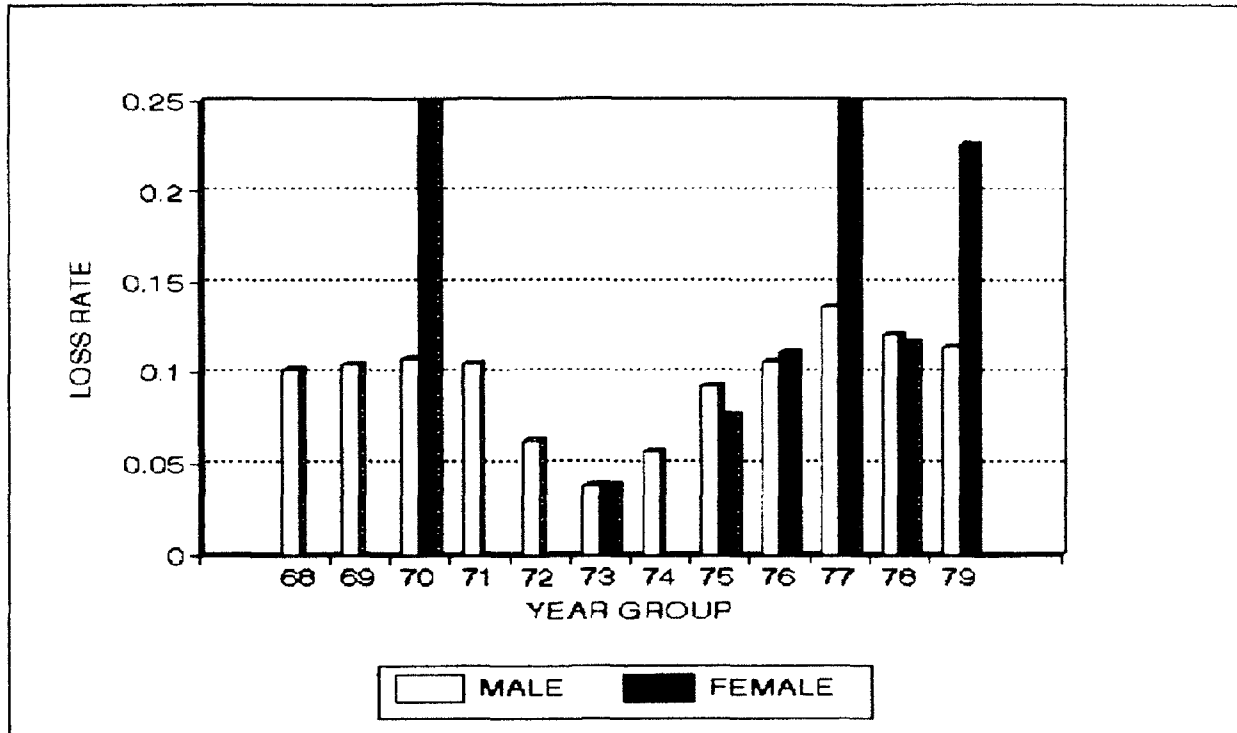


**Figure 72** Loss Rates of Aviation Warfare Officers by Gender for Milestone Period 1

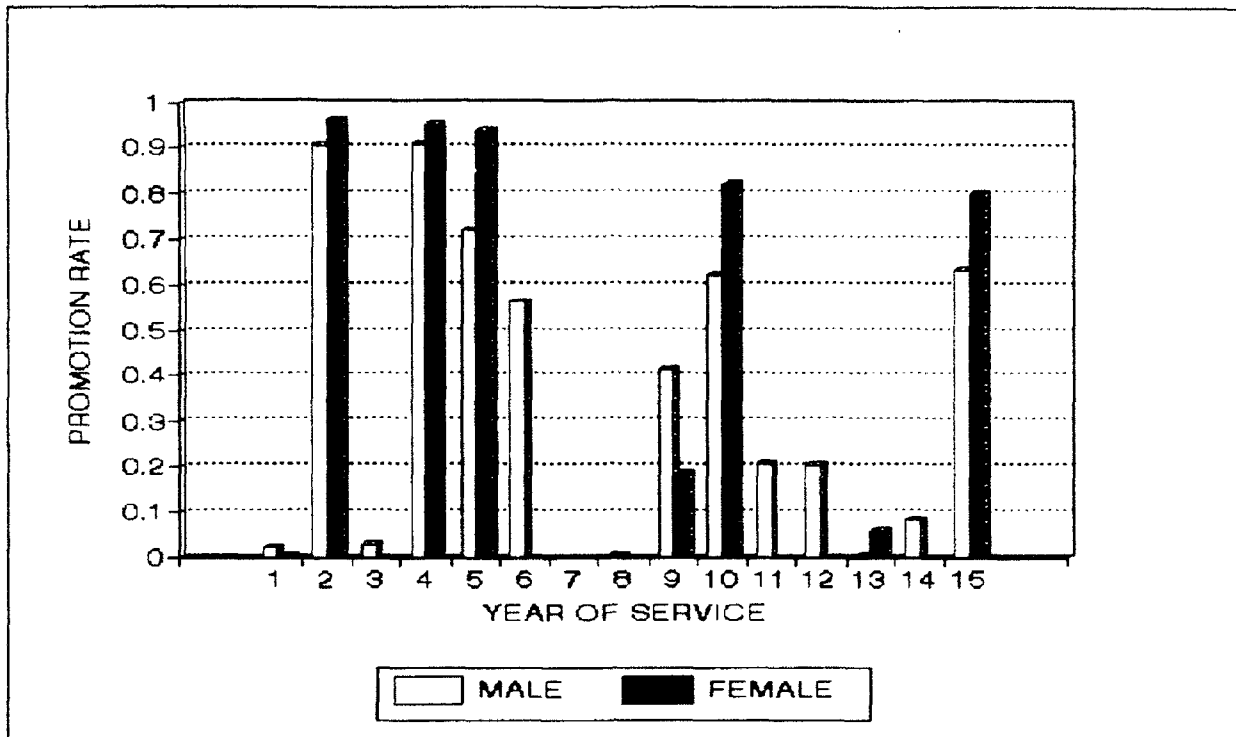




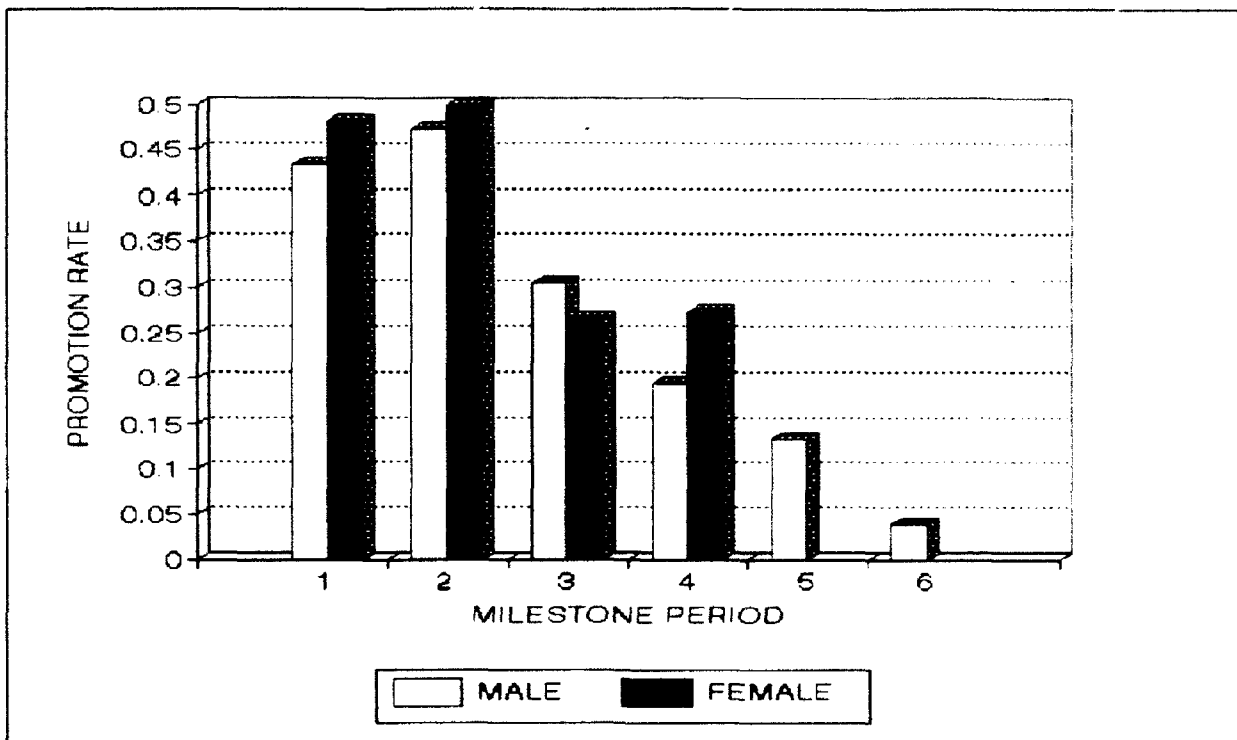
**Figure 73** Loss Rates of Aviation Warfare Officers by Gender for Milestone Period 2



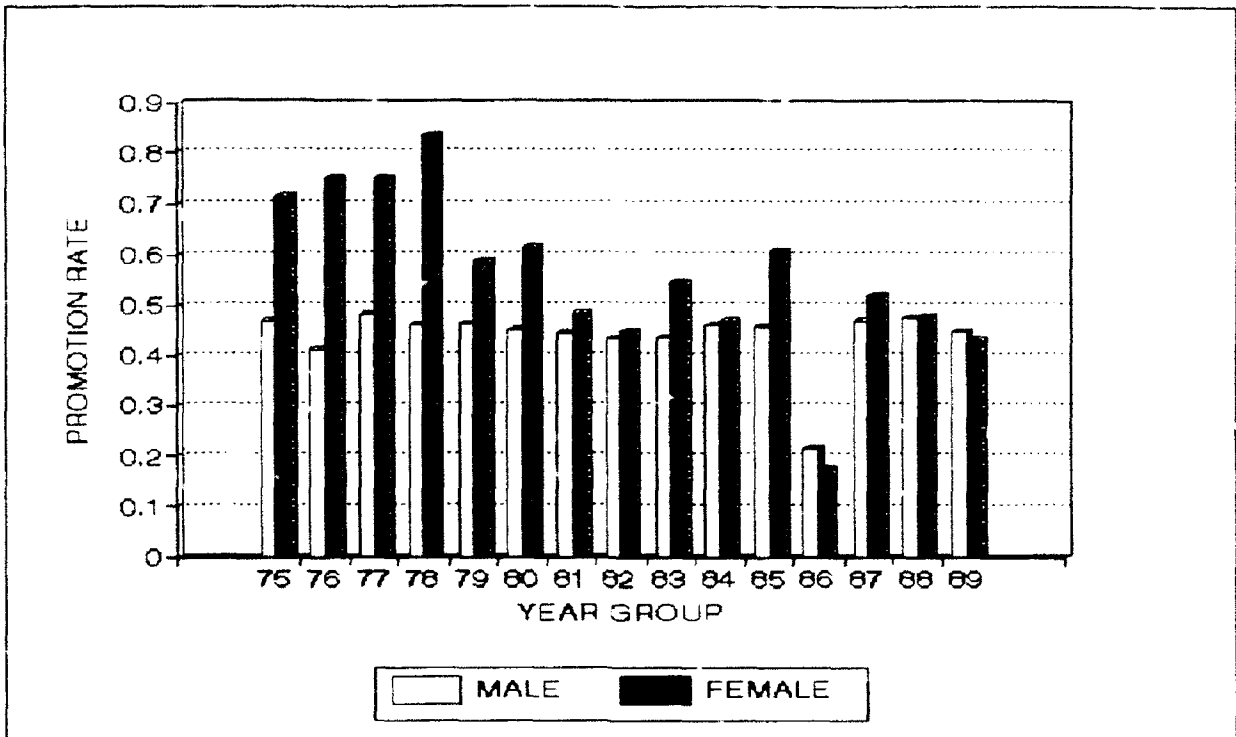
**Figure 74** Loss Rates of Aviation Warfare Officers by Gender for Milestone Period 3



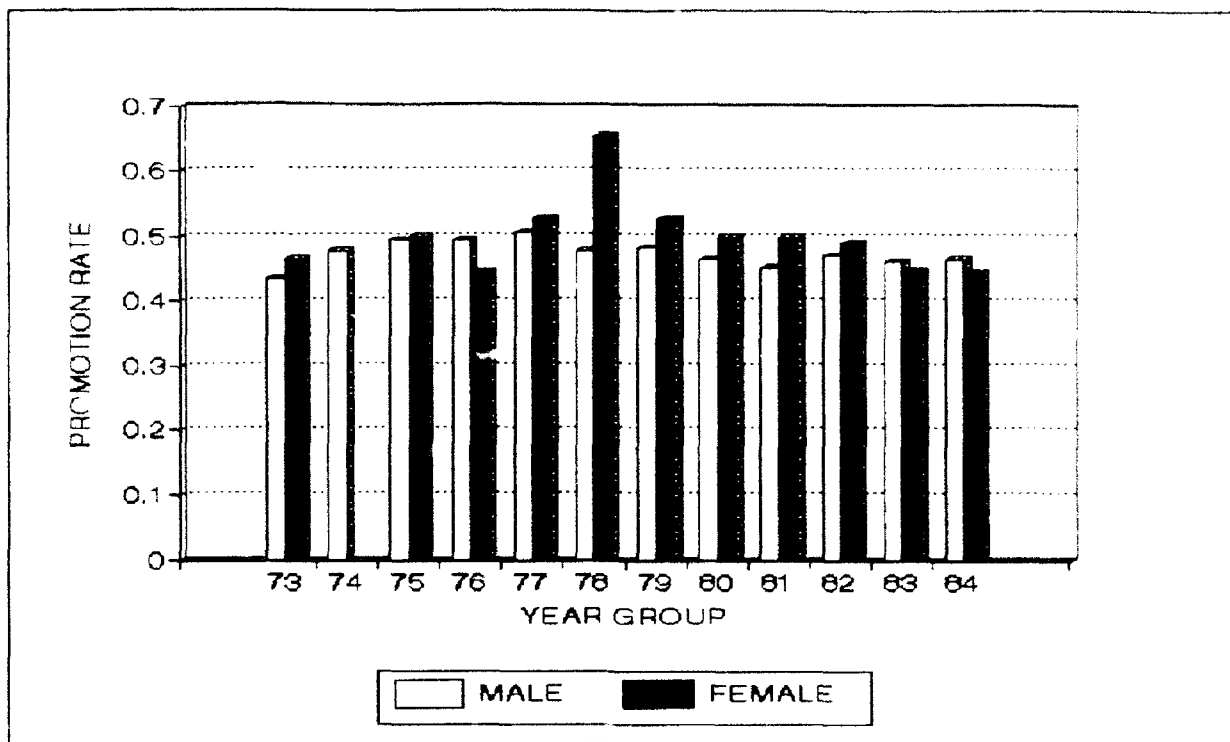
**Figure 75** Promotion Rates of Aviation Warfare Officers by Gender by Year of Service Averaged Across Year Groups



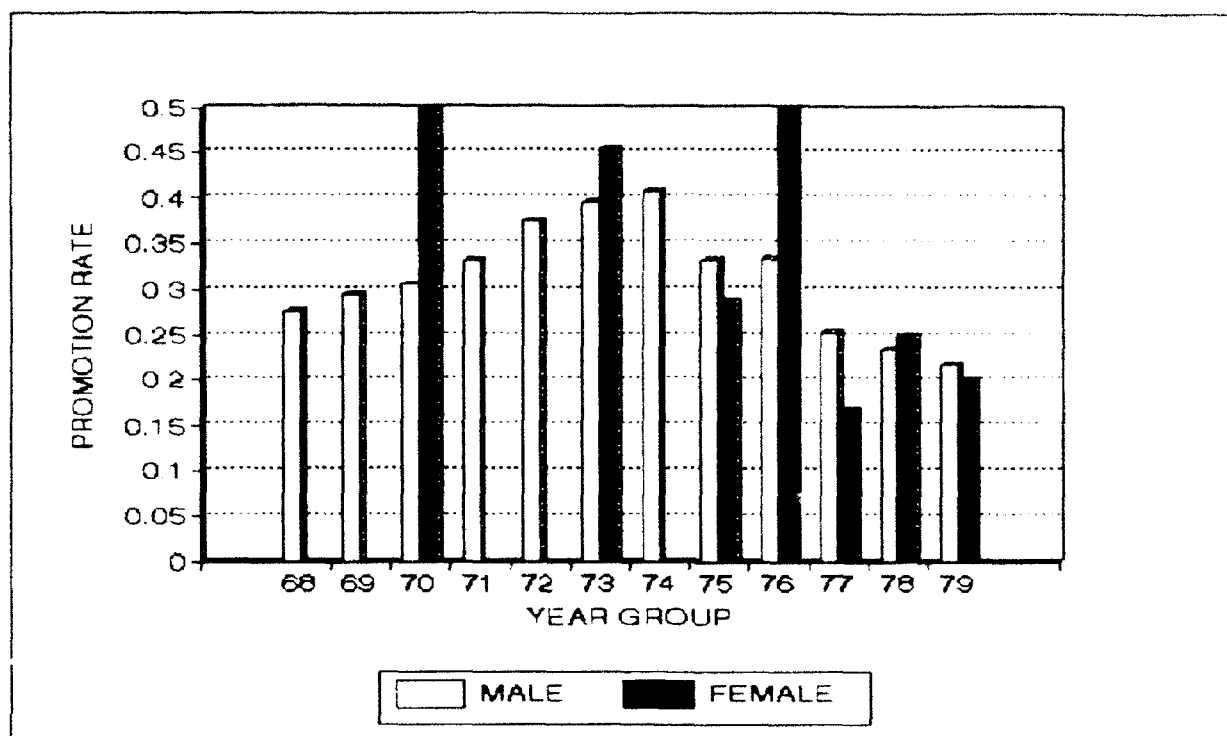
**Figure 76** Promotion Rates of Aviation Warfare Officers by Gender by Milestone Period Averaged Across Year Groups



**Figure 77** Promotion Rates of Aviation Warfare Officers by Gender for Milestone Period 1

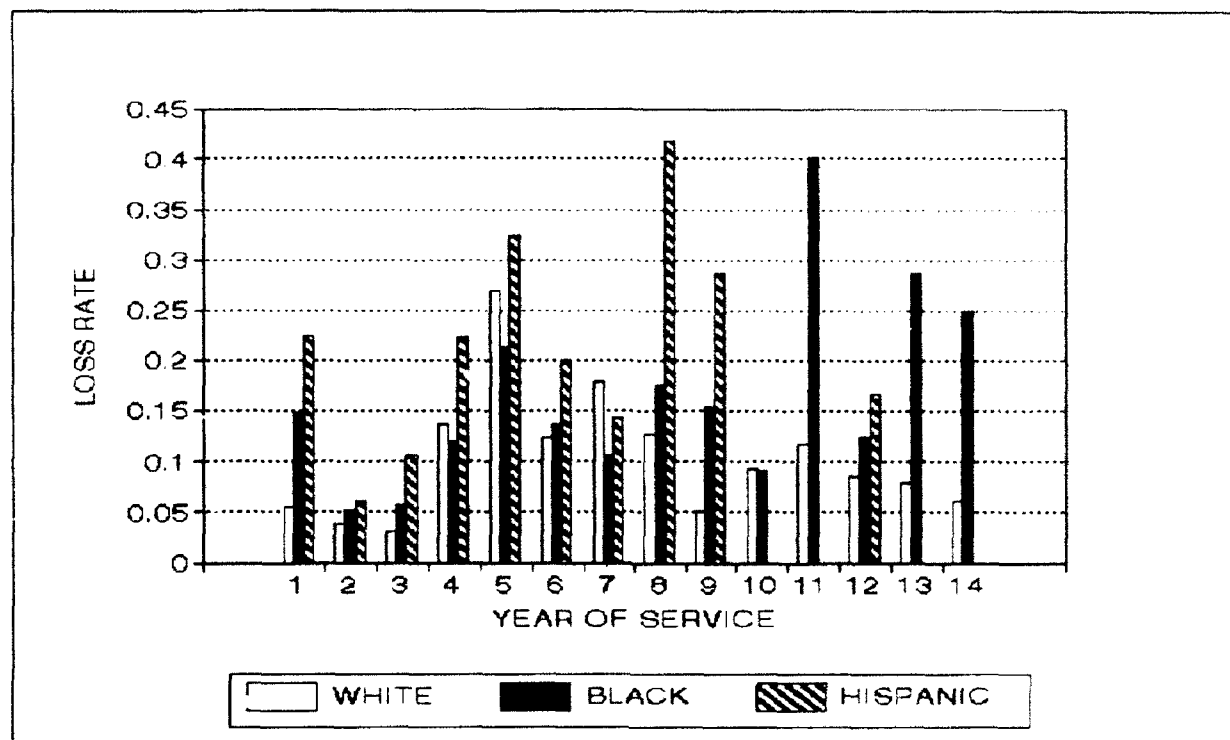


**Figure 78** Promotion Rates of Aviation Warfare Officers by Gender for Milestone Period 2



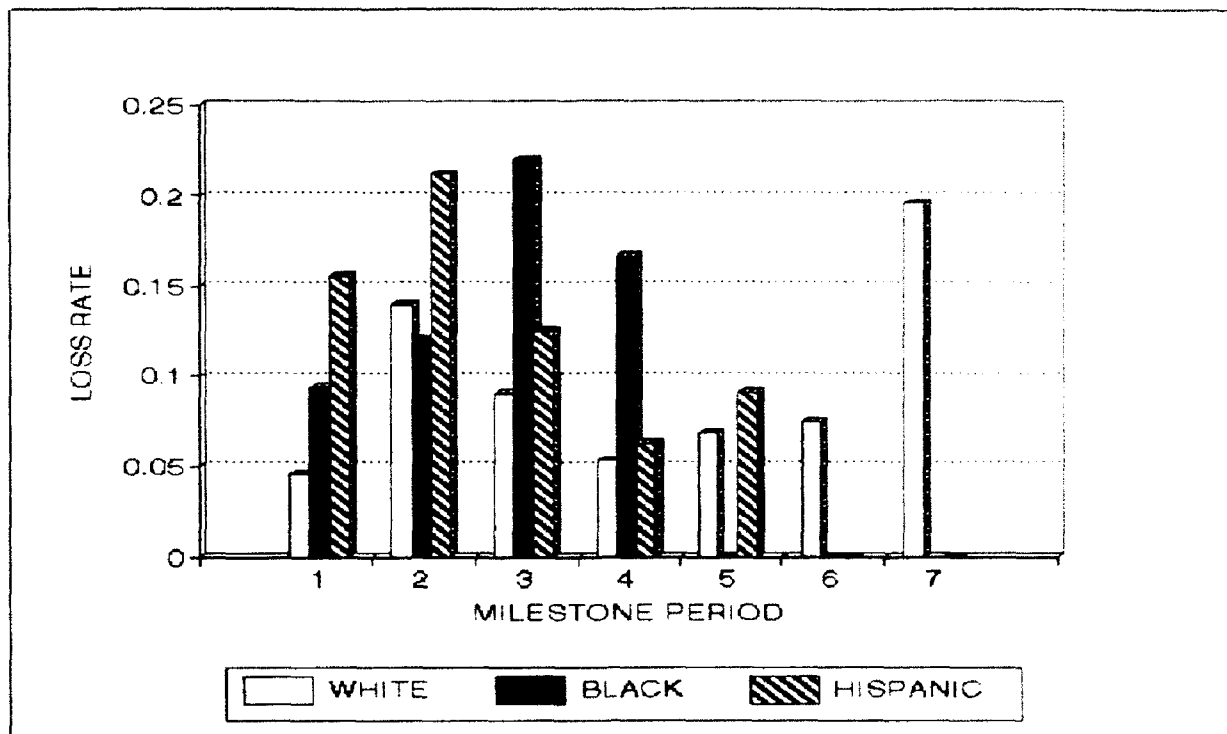
**Figure 79** Promotion Rates of Aviation Warfare Officers by Gender for Milestone Period 3

APPENDIX Q - SUPPORTING GRAPHS FOR THE SUBMARINE WARFARE  
COMMUNITY

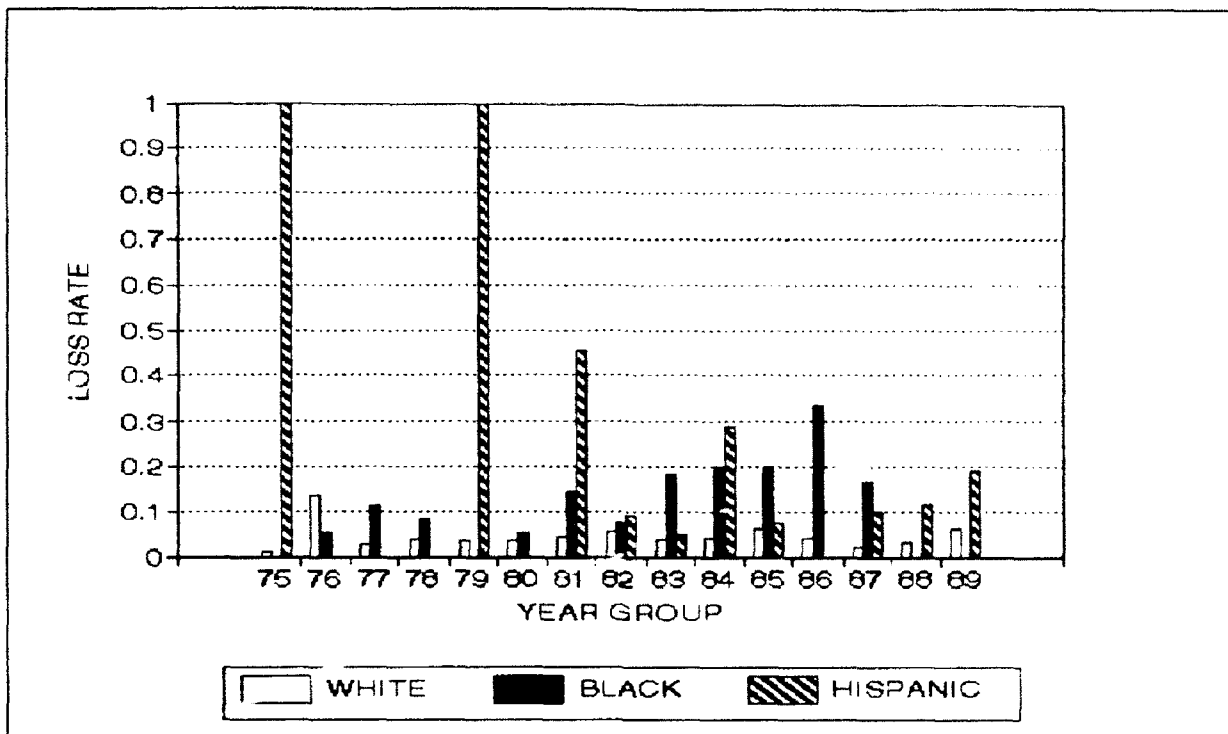


**Figure 80** Loss Rates of Submarine Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups

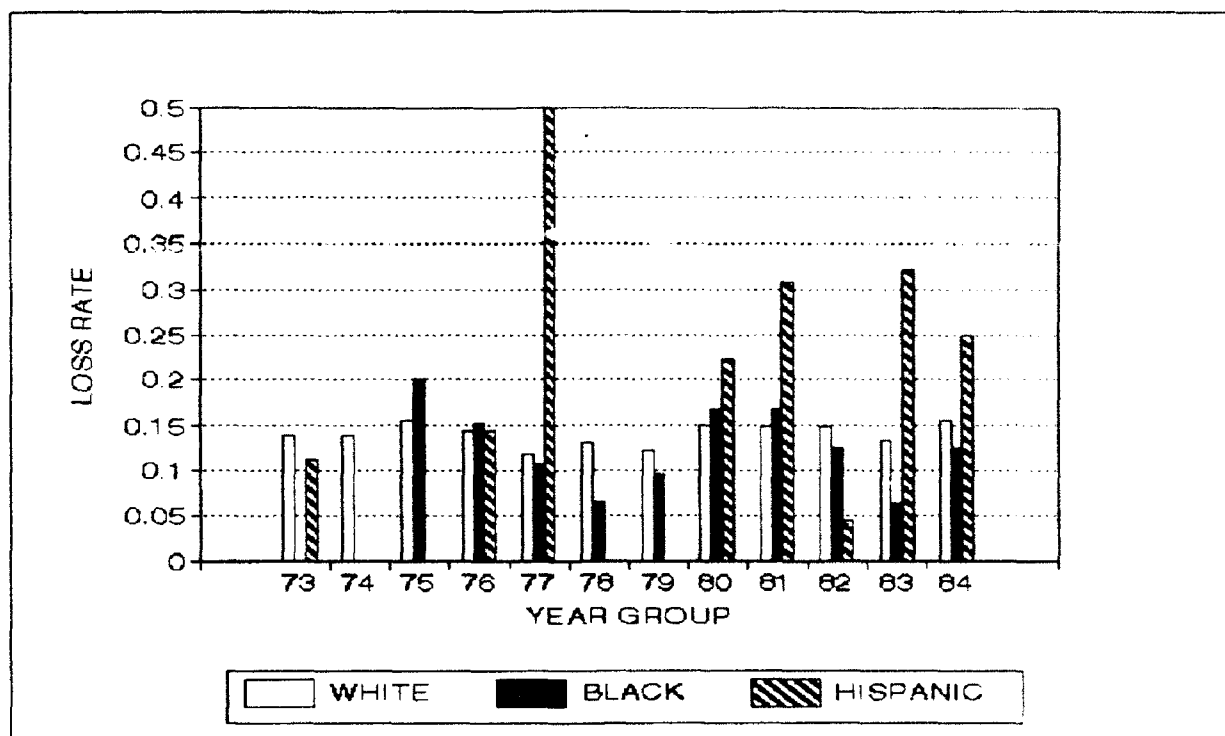




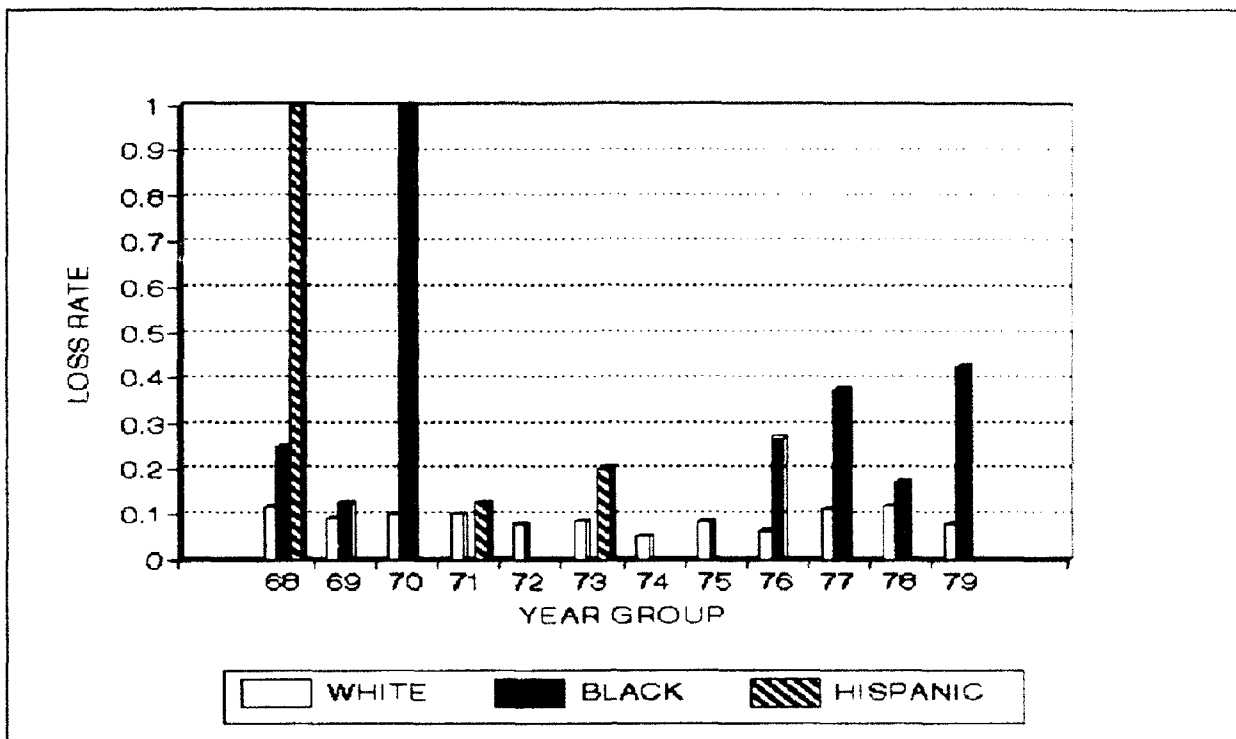
**Figure 81** Loss Rates of Submarine Warfare Officers by Ethnic Group by Milestone Period Averaged Across Year Groups



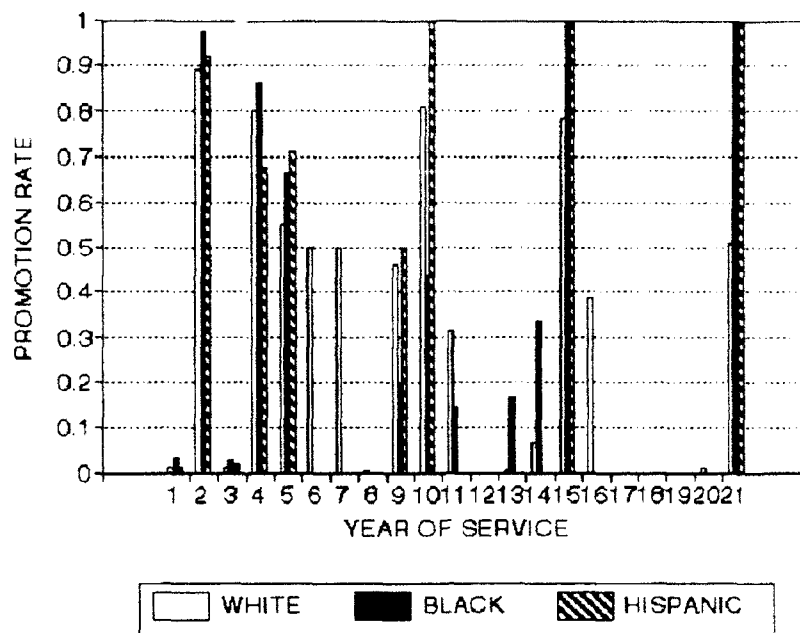
**Figure 82** Loss Rates of Submarine Warfare Officers by Ethnic Group for Milestone Period 1



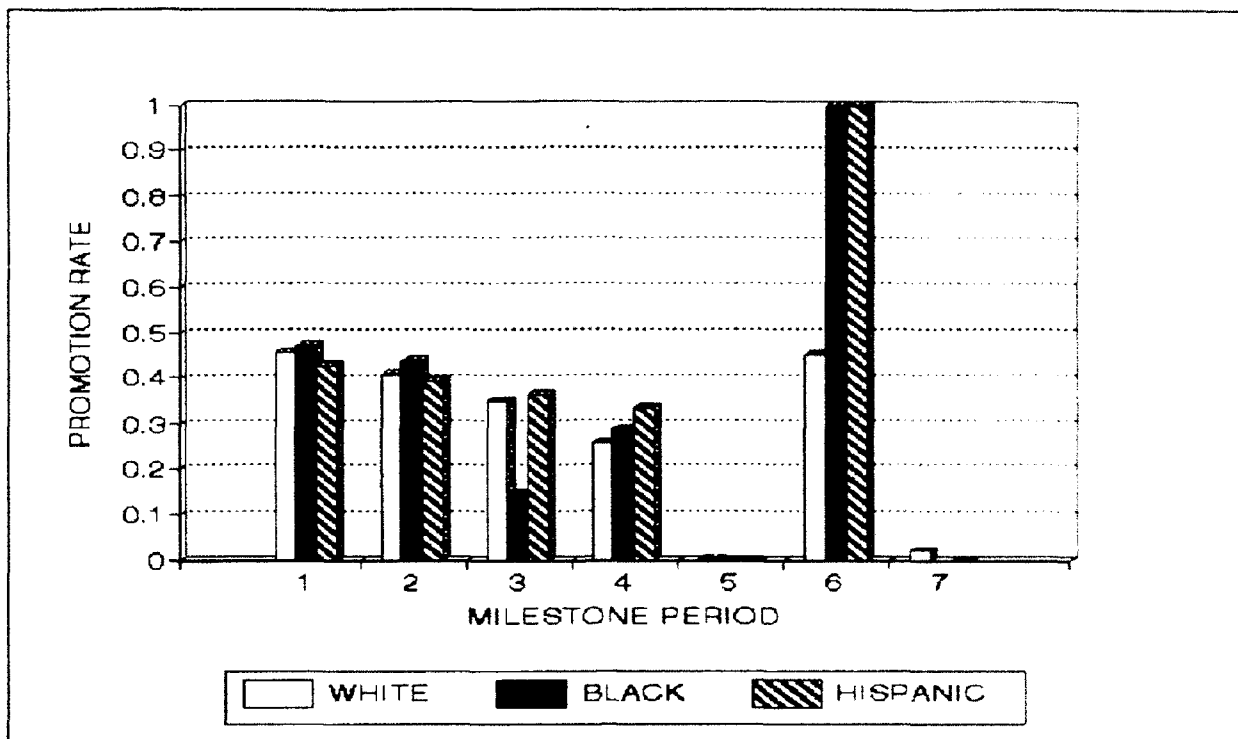
**Figure 83** Loss Rates of Submarine Warfare Officers by Ethnic Group for Milestone Period 2



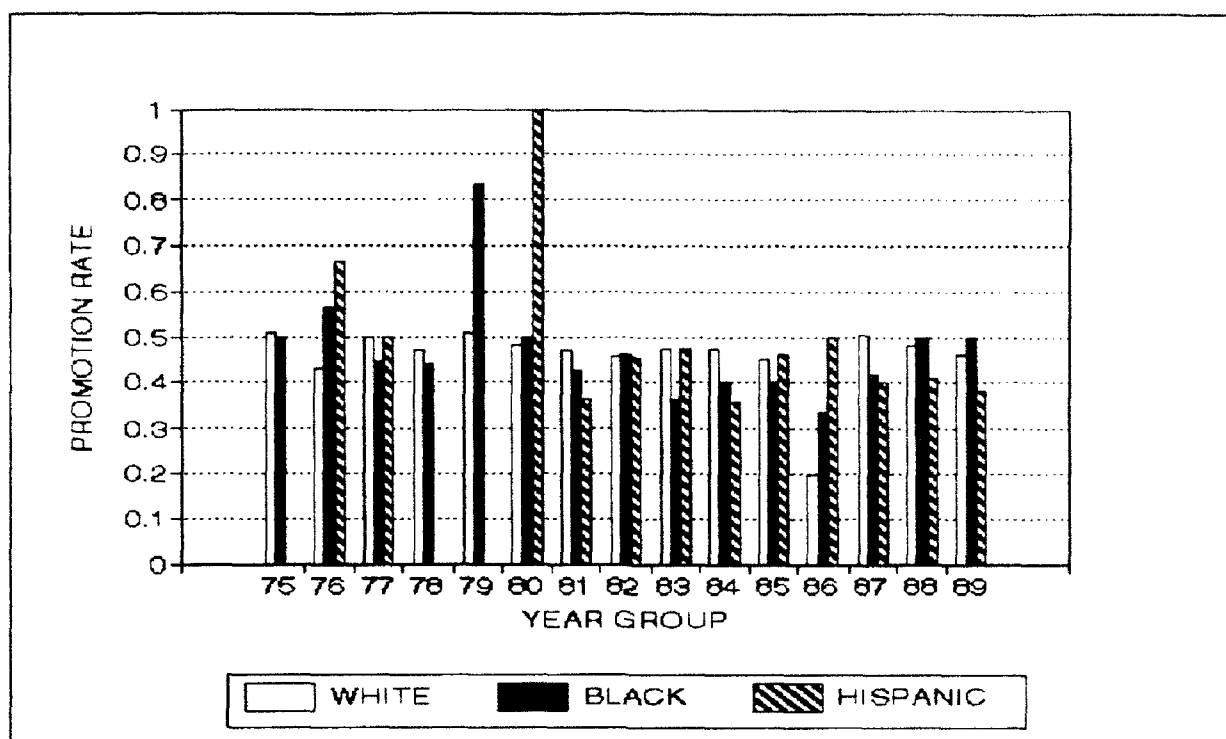
**Figure 84** Loss Rates of Submarine Warfare Officers by Ethnic Group for Milestone Period 3



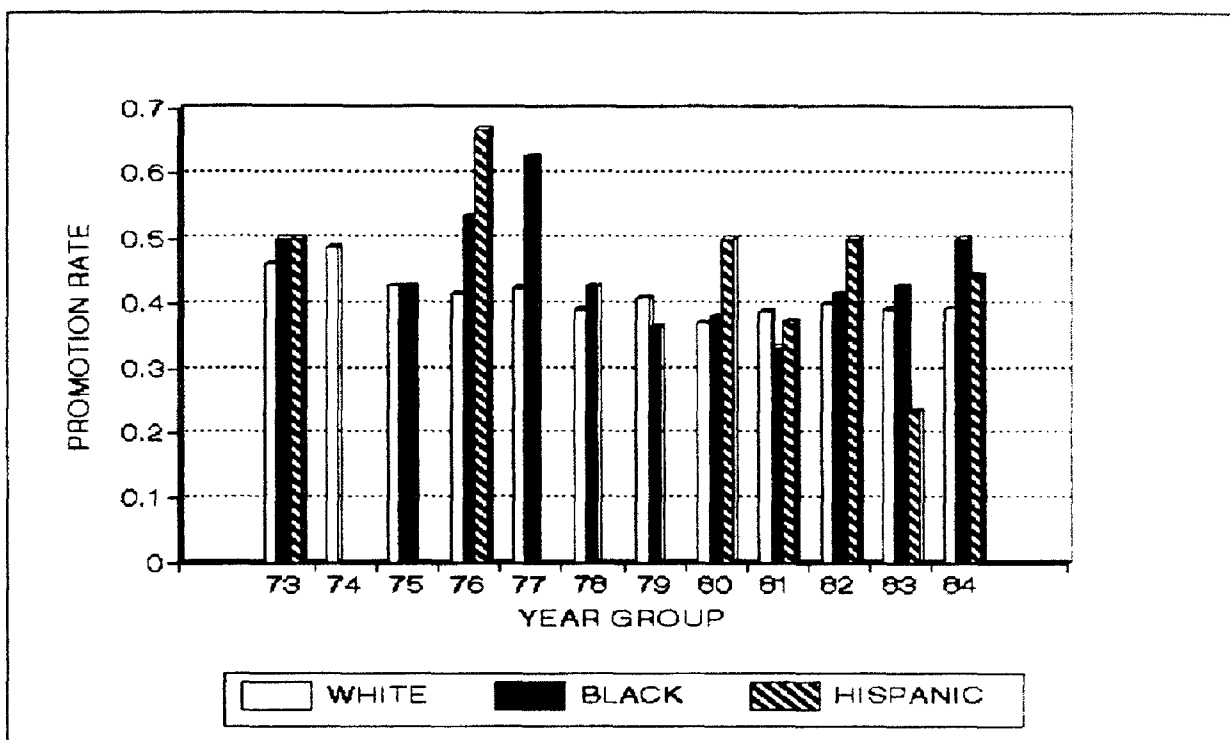
**Figure 85** Promotion Rates of Submarine Warfare Officers by Ethnic Group by Year of Service Averaged Across Year Groups



**Figure 86** Promotion Rates of Submarine Warfare Officers by Ethnic Group by Milestone Period Averaged Across Year Groups

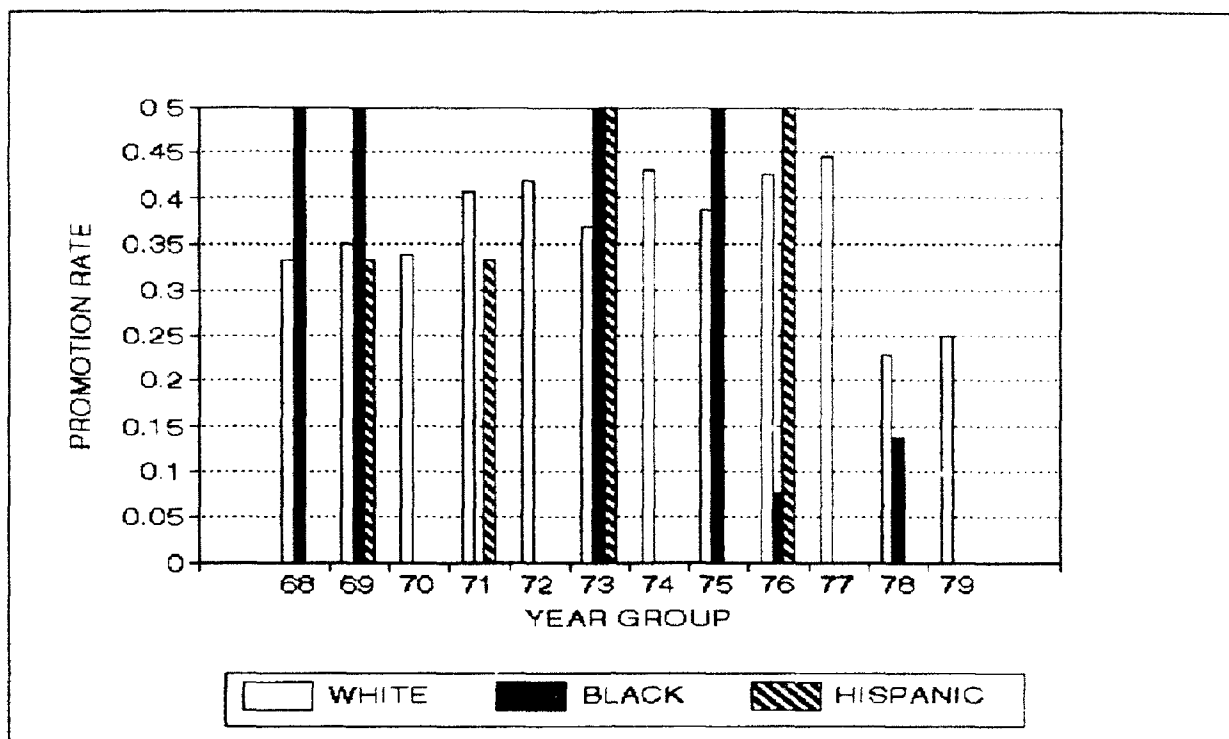


**Figure 87** Promotion Rates of Submarine Warfare Officers by Ethnic Group for Milestone Period 1



**Figure 88** Promotion Rates of Submarine Warfare Officers by Ethnic Group for Milestone Period 2





**Figure 89** Promotion Rates of Submarine Warfare Officers by Ethnic Group for Milestone Period 3

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